EXHIBIT G

Analysis and Evaluation of

1. "Foster Care Case Review of the Oklahoma Department of Human Services" Dated Feb 17, 2011, authored by Dr. Jerry Milner and Dr. Jacqueline Smollar, Experts for the Plaintiffs, Case 4:08-cv-00074-GKF-FHM

2. "Report on the KIDS System: Review and Analysis by Zoran Obradovic dated March 15, 2011"

and their deposition testimony, respectively,

Submitted by
Shlomo Sawilowsky, Ph. D.
June 14, 2011

My name is Shlomo S. Sawilosky. I have been hired by Riggs, Abney, Neal, Turpen, Orbison & Lewis to provide evaluation, analysis, advice, and opinions concerning the expert reports offered by Plaintiffs' in this case.

I am currently employed by Wayne State University. I am a Distinguished Faculty Fellow, and Professor of Evaluation and Research in the Division of Theoretical and Behavioral Foundations, College of Education. I received my Ph. D. in Curriculum and Instruction with program specialization in Educational Measurement,[1] Research,[2] and Evaluation[3] from the University of South Florida in 1985. My area of concentration of doctoral studies and dissertation was in Educational Statistics.[4]

I am or have been a member of the American Educational Research Association (Division D Measurement and Evaluation, and SIG/ Educational Statisticians), the American Mathematical Association, the American Psychological Association (Division 5, Measurement & Evaluation), the American Psychological Society, the American Statistical Association, the National Council on Measurement in Education, the Psychometric Society, and the American Counseling Association[5], and the American Institute of Aeronautics and Astronautics. I am a Fellow of the British Royal Statistical Society, and I am a past president of American Educational Research Association SIG/Educational Statisticians.

I have over 320 publications and conference presentations, which include two books, over 115 peer reviewed articles, book chapters, and abstracts in recognized national and international journals, and over 100 peer reviewed presentations at the annual conferences of national and international professional organizations and academic societies, on the topics of applied statistics and data analysis, research design, psychometrics, and program evaluation. I have published over 35 standardized or criterion referenced tests in the fields of education and psychology. I have published two dozen entries in statistics encyclopedias. I am the editor of the *Journal of Modern Applied Statistical Methods* and have served on the editorial board or as an ad hoc reviewer for many peer reviewed journals, such as the *Journal of Educational and Behavioral Statistics*, *Statistics in Medicine*, *Computational Statistics and Data Analysis*, *Journal of Nonparametric Statistics*, the *British Journal of Statistical and Mathematical Psychology*, *Psychological Bulletin*, *Psychological Methods*, among others.

My company, Shlomo Sawilowsky, Inc., bills all invoices for work I perform. My company charges $150/hr for my time when I am working at home, plus any non-office supply related expenses approved by counsel. The rate for depositions within 25 miles travel is $175/hr. When travel is required my rate is $2,000 for the first day, and $1,000 per day thereafter, $49 per day per diem, plus all travel related expenses (e.g., flight, car rental, hotel), whether for counsel or deposition. I do not work from one hour prior to sundown Friday evening through one hour after sundown Saturday/Jewish holydays.

---

[1] My area of expertise in this discipline is in classical measurement theory.

[2] My area of expertise in this discipline is the entire gamut of social and behavioral research and experimental design.

[3] My area of expertise in this discipline is in quantitative and qualitative program evaluation. Although I served as an assistant dean or interim assistant dean for about three years and had among my administrative duties oversight of the departments of Educational Leadership and Policy Studies, and Instructional Technology, I do not claim to have content expertise in policy evaluation or personnel/individual performance evaluation, respectively.

[4] My area of concentration is in Monte Carlo simulation methods, and subareas of specialty are in nonparametric, robust, exact, and permutation statistics.

[5] Formerly known as the American Personnel and Guidance Association.

With regard to this report, and my earlier report dated 7 June 2011 which was an analysis and evaluation of the reports by Mr. John Goad, Dr. Viola Miller, Dr. Eugene Reynolds, and Dr. Peg Hess, I reserve the right to use as an exhibit at trial any of the charts, graphs, tables, or diagrams contained in my report, as well as any item in my considered materials, including direct references and bibliography.

Following my critiques, signature, and date, I have attached my Wayne State University *c. v.*, my company (Shlomo Sawilowsky, Inc.) resume, and a brief resume of pre-professorial work experiences. The last attachment in this document is a listing of materials I have considered in this case, apart from references in the literature that are cited following each critique. I have forwarded all electronic documents I have authored, and all to/from emails related to this case excluding those that I have been instructed by counsel for Defendant that are considered privileged work products, to Mr. Jamey Iceberg of Riggs, Abney, Neal, Turpen, Orbison & Lewis for production. I did not write any documents or notes by hand.

Summary

Drs. Jerry Milner and Jacqueline Smollar submitted a report that was rife with errors. I outline weaknesses in their case records review (a form of ex post facto survey design); inappropriate reliance on post facto explanation; incorrect imputation of causality, ignoring of the importance of multi-way contingencies; failure to partial associations; ignorance or ignoring of potential extraneous variables, intervening variables, antecedent variables, suppressor variables, distorter variables; misunderstanding of the relation between a priori sample size and post hoc valid cases; use of non-transparency in random selection; failure to test representativeness to confirm the sampling scheme; procedural flaws in survey protocols; creation of biased intervals; violations of "rules" in test construction; failure in data entry to properly distinguish between missing values and legitimate zero responses; failure to invoke robust descriptive statistics in the presence of extreme values; lack of cross validation; failure to conduct a reality check; inappropriateness of converting continuous variables into discrete variables; failure to understand the difference between an unordered, singly ordered, or doubly ordered contingency table when choosing an inferential test; misunderstanding of the meaning of the chi-square statistic; failure to properly treat sparse data sets; failure to conduct standardization of rates when generalizing sample proportions to the population; and failure to stratify in data analyses.

Dr. Zoran Obradovic's report did not indicate a single example of an error or limitation in the OKDHS database system that was shown to be the causal element harmful to the children in OKDHS care. There was no research methodology conducted, data collected, or statistical analyses presented that documented the prevalence of such an allegation of harm. Dr. Obradovic alleged likelihood and risk, but provided no statistical methodology and analysis to support his allegations.

These experts for Plaintiffs offered the Court opinions that were (a) rife with methodology errors and misunderstandings, (b) assertions and speculations, and (b) bereft of rigorous scientific principles underlying evaluation and research methodology. Hence, I urge the Court to give little or no weight to their opinions.

"Foster Care Case Review of the Oklahoma Department of Human Services" Dated Feb 17, 2011, authored by Dr. Jerry Milner and Dr. Jacqueline Smollar, Experts for the Plaintiffs, Case 4:08-cv-00074-GKF-FHM; and their depositions, respectively

Introduction

Although the data analysis for the report[6] was performed by Dr. Jacqueline Smollar[7], Dr. Jerry Milner "provided oversight for all of the project activities."[8] This indicated Dr. Milner alleged he had the qualifications and experience to provide oversight in all matters related to the case review, including design, sampling, psychometrics and testing protocols, data collection, data entry and cleansing, statistical analysis, statistical conclusions, and program evaluation. Hence, my critique as set forth in this report applies to the work of both Drs. Milner and Smollar.

I have reviewed the above captioned report, which includes their data collection instrument, as well as the depositions taken from both Drs. Milner and Smollar. My report on their case review of the Oklahoma Department of Human Services (OKDHS) will show that neither Drs. Milner nor Smollar have the methodological expertise to produce a reliable report on the foster care system in the State of Oklahoma. The survey they conducted was naïve and failed to follow many basic tenets of ex post facto survey research design, the data coding for analysis was handled in an erroneous fashion, the data analyses were systematically calculated through inappropriate and incorrect methods, and hence, no reliable conclusions can be drawn from their work.

I outline the errors and subsequent weaknesses in their case records review ex post facto survey design; inappropriate reliance on post facto explanation; incorrect imputation of causality, ignoring of the importance of multi-way contingencies; failure to partial associations; ignorance or ignoring of potential extraneous variables, intervening variables, antecedent variables, suppressor variables, distorter variables; misunderstanding of the relation between a priori sample size and post hoc valid cases; use of non-transparency in random selection; failure to test representativeness to confirm the sampling scheme; procedural flaws in survey protocols; creation of biased intervals; violations of "rules" in test construction; failure in data entry to properly distinguish between missing values and legitimate zero responses; failure to invoke robust descriptive statistics in the presence of extreme values; lack of cross validation; failure to conduct a reality check; inappropriateness of converting continuous variables into discrete variables; failure to understand the difference between an unordered, singly ordered, or doubly ordered contingency table when choosing an inferential test; misunderstanding of the meaning of the chi-square statistic; failure to properly treat sparse data sets; failure to conduct standardization of rates when generalizing sample proportions to the population; and failure to stratify in data analyses.

In this first section on design issues, I generally bring examples from the research and statistics literature to illustrate these failures. It is important to understand why I have chosen to do so in this fashion. Because Drs. Milner and Smollar failed to consider these basic tenets of research design and analysis, they failed to design their instruments to capture the relevant

---

[6] File named "2011.02.17 CSF Foster Care Review.pdf

[7] "The data analysis for the findings reported herein was conducted by Dr. Jacqueline Smollar, 2011.02.17 CSF Foster Care Review.pdf, p. 4)"; similarly in her deposition, page 16:15-16, "Q. Dr. Milner I think pretty much looked to you for the statistical evaluation?," 17 A. "Yes."

[8] Ibid, p. 12.

data needed. My charge was not to properly conduct their work for them; it was to critique the work they conducted. If they did not collect relevant data they could not make it available as part of their considered material for me to analyze.

In the second section of this report I examine design, psychometric, and data analysis issues as expressed in their report and for which they claim support in their depositions. I demonstrate specific procedural flaws and data analysis errors that underscore their report cannot be relied upon either as a proper description of their sample, or in generalizing to the population of foster care in Oklahoma.

Design: Case Records Review

Post facto explanation

Drs. Milner and Smollar reviewed case records of selected "children in the custody of the Oklahoma Department of Human Services (OKDHS)"[9] for "[t]he time frame... of the child's most recent entry into OKDHS custody until June 1, 2010."[10] The design invoked by Drs. Milner and Smollar is purported to be a case records review[11] which is a form of ex post facto survey,[12] or archival survey. In its simplest form, a case records review "looks solely at the content of case records,"[13] which is generally only feasible when the records exist in a standardized layout.[14]

The first level of analysis of this design, which Drs. Milner and Smollar never progressed beyond in their report, produces a plethora of one variable tables with counts or percentages, and two variable row by column ($r \times c$) cross-tabulations as they are commonly called in the social and behavioral sciences, or contingency tables as they are commonly called in statistics and data analysis. The entries in $r \times c$ tables are also counts or percentages.

The simple presentation of tabulated data in this fashion easily leads to a naïve interpretation, as Weisberg and Bowen (1977) cautioned, "We must not overinterpret the percentages in such tables," (p. 121) for many reasons to be explicated below. The ex post

---

[9] Ibid, p. 4.

[10] Ibid.

[11] Dr. Smollar is not aware that a case records review, archival study, or documentary analysis wherein data are obtained by an a priori list of questions are all forms of ex post facto survey. For example, in her deposition, Dr. Smollar erroneously opined that a case records review is not a survey (31:10-11; although she had no problem referring to it as a questionnaire, 186:13-17. If the prompts in the instrument were asked via telephone, email, face-to-face, etc., the data collection instrument would be called a questionnaire). Instead, she called it a "data extraction study" (Page 111:2-3). A "data extraction study," e.g., an SQL database query, merely retrieves data at specified memory locations, which is generally only possible when the records are maintained in a standardized layout. In the absence of a standardized layout, and by virtue of constructing a (or adapting a preexisting) data collection instrument to be used by the case reviewers, the design actually becomes a survey, albeit in this case post hoc. (It can either be viewed as a survey of archival records, or surveying reviewers to obtain their judgments on the information contained in the records.) When it was stated in deposition to Dr. Milner, "Well, you designed the survey," (Milner deposition, 404:26) he answered "Correct," (page 405:21).

[12] Examples of textbook authors who discussed ex post facto surveys include Depoy & Gitlin (2005) and Smith (1990).

[13] Landrum, Schmidt, & McLean (1995).

[14] Wilson (2003), p. 402. See, e. g., Woloshynowych, Neale, & Vincent (2003) on a major revision effort to standardized case record reviews in hospital safety to make case record reviews more feasible.

facto survey design only provides a post facto understanding of what was surveyed at that moment in time. Its weaknesses are further amplified when the explanatory impact is restricted to naïve r × c tables, as Rosenberg (1968) explained:

> Why does post-factum interpretation have low evidential value compared with hypothesis testing? There are three distinctive **disadvantages** of post-factum interpretation: *they are flexible, not nullifiable, and not dependent on external confirmation*. (p. 233, bold added for emphasis).

Rosenberg explained that post-factum interpretations have "*excessive flexibility*... one is free to change one's interpretation at will," (p. 233). *Not nullifiable* means "there is no way to prove" an "interpretation is wrong," (p. 233). "*Not dependent on external confirmation*" means "One cannot refer back to the data for confirmation; the strength of the interpretation resides solely in the logical system in which it is embedded. In hypothesis testing, on the other hand, the data come after the hypothesis has been formulated and thus represent external confirmation," (p. 233). In other words, post-factum interpretation easily leads to subjective support for a conclusion the researcher(s) wished to support prior to conducting the survey.

Hence, Merton (cited in Rosenberg, 1968, p. 233) stated "*Post-factum* explanations remain at the level of plausibility (low evidential value) rather than leading to 'compelling evidence' (a high degree of confirmation)." When I teach designs such as this in my Master's and Doctoral research methods classes at Wayne State University I emphasize they reside at the bottom of the hierarchy of research designs in that they are the least defensible and have the least ability to provided replicable results.

The above stated warnings general to surveys (ex post facto or otherwise) apply equally to the specific application of case records review, as noted in an application to hospital management: "[H]indsight bias – the tendency to impute causation when the outcome is known – is a potential inherent weakness. In published studies causation (whether or not an adverse event is due to healthcare management rather than the disease process) and preventability are judged to the legal standard of "more likely than not" which leaves considerable room for dispute."[15] Hindsight bias is not limited to when an outcome is known; it is especially opportunistic when an outcome has only been alleged.

Plaintiffs' experts relied exclusively on an ex post facto case review design, thereby limiting their conclusions to post-factum analysis and interpretation. They relied exclusively on single variable and naïve r × c tabulations throughout their report.

Causality

As mentioned above, the imputation of causation in a case records review is an inherent weakness. Indeed, a major limitation embedded in all of the tables produced from such a survey design is no scientifically valid statements can be made about the causes of harm, maltreatment, or "risk," as noted by Weisberg and Bowen (1977):

> Finding a relationship that is substantially important does not mean that we have "proven" that one variable 'causes' the other. Correlation does not prove causation. That two variables covary does not in itself show that a change in one

[15] Neale & Woloshynowych (2003), p. 3

would produce a change in the other. There is always the possibility that some other variable or variables are causing both the original variables to change. In order to speak more definitely about causation, *we must examine more than two variables at a time*." (p. 167, italics added for emphasis)

Multi-way Contingency Tables Third (or more) Variables

As noted immediately above, in order to obtain a clearer understanding of the percentages or counts in a r × c contingency table, a third (or more) variable must be simultaneously considered. Examples are given below in order to demonstrate their important in interpreting data compiled in an r × c table. The subsections below are titled *Partial Association, Extraneous variables, Intervening variables, Antecedent Variables, Suppressor Variables, and Distorter Variables.*

Partial Association – the actual association between two variables is dependent on a third variable. A measure of association that can be used to illustrate partial association that is applicable to ordered contingency tables, such as some of those constructed by Plaintiffs' experts, is Kendall's *Tau*$_c$ (τ_c), referred to hereafter as τ for convenience. (τ is actually a family of procedures that measure association, and one among many that is amenable to assessing association in an ordered r × c contingency table is version c.) Drs. Milner and Smollar did not report τ, or any other direct measure of association, for any of their contingency tables. Hence, they were not able to assess any partial associations.

τ is defined on the interval [-1, +1], inclusive. Values close to ±1 indicate a high association, whereas values close to 0 indicate little association. The "+" sign indicates the two variables both tend to increase or both variables tend to decrease. The "-" sign indicates as one variable increases the other variable decreases.

Consider the following hypothetical example pertaining to caseworker turnover (T) and timeliness or reunification (R). Suppose the association between these two variables is τ_{TR} = +.60. In the naïve r × c cross-tabulation, this moderately high association might be cited as evidence of harm (Report, p. 4), maltreatment (Report, p. 4), or risk (Report, p. 27). Suppose further, that turnover (T) is associated with some mitigating variable, such as years of caseworker experience (E), with τ_{TE} = +.70, and the association of reunification effort (R) with experience (E) is τ_{RE} = +.80.

To properly understand the association of turnover (T) with reunification (R) in the example it is necessary to partial out the effects due to the years of experience (E). The desired statistic is noted symbolically as $\tau_{CT.E}$. (The "$_{.E}$" means to remove the effects due to caseworkers' experience.) The formula and calculation for the example data are:

$$\tau = \frac{\tau_{TR} - (\tau_{TE}\tau_{RE})}{\sqrt{1-\tau_{TE}}\sqrt{1-\tau_{RE}}}$$
$$= \frac{.6-(.7\times.8)}{\sqrt{1-.7^2}\sqrt{1-.8^2}}$$
$$= +.09$$

Hence, had a survey been designed to collect caseworkers' years of experience (E), and it was used to partial out its effects, a more accurate association between turnover (T) and reunification (R) in this hypothetical example would have been found to be only +.09 (a very

low association) instead of +.60 (a moderate association). This finding would have contradicted any allegation of harm, maltreatment, or risk due to turnover rate.

Years of experience is only one of many potentially *moderating* (Baron & Kenny, 1986) variables that would be needed in an ex post facto survey of the type performed by Drs. Milner and Smollar, and for which data needed to have been collected, in order to obtain a proper understanding of the magnitude of the association between caseworker turnover and children's reunification. (There may also be many potential *mediating* variables, which are external variables that are helpful in explaining why the turnover and reunification may be associated.)

An analysis of caseworker turnover should take into consideration commonly employed covariate characteristics, such as those suggested by Baker and Charvat (2008, p. 173), who identified 12 caseworker and 15 job characteristics that may mitigate the association between caseworker turnover and children's reunification. They are compiled in Table 1 below:

Table 1. Caseworker and Job Characteristics

Caseworker characteristics	*Job characteristics*
Age	Perception of job difficulty
Marital status	Perception of ability to perform tasks
Ethnicity	Salary
Number of children	Benefits
Prior child welfare history	Importance of salary
Physical abuse history	Importance of benefits
Sexual abuse history	Perception of helpfulness of supervisor
Loss of parent before age 20	Frequency and duration of supervision
Perception of status of job	Style of supervision received
Importance of job status	Number of friends at work
Perception of career ladder	Strength of friendships at work
Importance of career ladder	Extent of interpersonal conflicts at work
	Length of commute
	Cost of commute
	Stressfulness of commute

Few potentially moderating variables were considered by Plaintiffs' experts in designing their case records review instrument, and no moderating variables were considered in performing any of their statistical analyses and calculations.

Extraneous variables – there is no intrinsic link between the independent and dependent variables. The reason for their apparent association is due to the presence of an extraneous variable that is related to both the independent and dependent variable. This is shown as:

	→	Independent Variable
Extraneous Variable		↑↓
	→	Dependent Variable

A hypothetical example might be length of stay in foster care with the number of drownings in outdoor pools from January to September. Let X = the length of stay in months, and Y = the number of drownings. Although the correlation might be very large, there is an extraneous variable that accounts for it, which is the increase in temperature from January to September. More children are likely to go swimming as the outdoor temperature gets warmer, and the chances for accidents in the water increase as more children go swimming. This is exemplified as:

	→	Length of stay
Weather		↑↓
	→	Number of drowning

Plaintiffs' experts did not consider any extraneous variables in the design of their case review survey instrument or their data analyses, and therefore their conclusions are subject to this error.

Intervening variables – the independent and dependent variable are not directly associated. The apparent association is solely due to the presence of an intervening variable. In its absence, the apparent association decreases or vanishes. This is shown as:

Independent Variable	→	Intervening Variable	→	Dependent Variable

An example from Rosenberg (1968, p. 63) notes there is an association between the quality of home life ("broken" vs. not) and child delinquency. However, it may not be the status of the home that leads to delinquency; it may be that the broken home leads to the absence of a father figure which in turn leads to the delinquency. (Hence, an intervention program such as "big brother," which provides the presence of a father figure, mitigates (i.e., reduces or removes) this association.) This is exemplified as:

Broken home	→	Absence of Father Figure	→	Delinquency

Plaintiffs' experts did not consider any intervening variables in the design of their case review survey instrument or their data analyses, and therefore their conclusions are subject to this error.

Antecedent variables – the magnitude of the association between the independent and dependent variable is due to a preexisting condition. In the absence of the antecedent variable, the association between the independent and dependent variables may be different, but it still exists. However, in the absence of the independent variable there is no association between the antecedent variable and the dependent variable. This is shown as:

Antecedent Variable	→	Independent Variable	→	Dependent Variable

An example is the association of prenatal education, mother's vitamin E intake, and child's birth weight. The availability of prenatal education is related to the degree that women ensure they meet minimum vitamin intake standards while pregnant. Their vitamin E intake, in turn, is related to their child's birth weight (Scholl, Chen, Sims, & Stein, 2006). The relationship

between intake and birth weight lessens with the decrease in prenatal education. However, if intake is controlled (e.g., the mother is prevented from consuming food, food supplements, vitamins, minerals, etc.), there obviously can be no relationship between prenatal education and child's birth weight. This is exemplified as:

Prenatal Education →Mother's Vitamin E Intake→ Child's Birth Weight

Plaintiffs' experts did not consider any antecedent variables in the design of their case review survey instrument or their data analyses,[16] *and therefore their conclusions are subject to this error.*

Suppressor Variables – negative, reduced, or truncated outcomes may be erroneous due to the presence of certain variables. A suppressor variable neutralizes or hides the relationship between two variables. Rosenberg (1968) noted the consequences of ignoring suppressor variables "may be equally serious" (p. 84) in making incorrect conclusions as it is to ignore the presence of extraneous variables. This is shown as:

Variable			Relationship
X	Suppressor	Y	R^2
Precursor	Suppressor	Successor	↓
Precursor		Successor	↑

An example was given by Thompson and Levine (1997). Note that R^2 is a measure of effect size, also known as the coefficient of determination, which explains the amount of variance in the Y variable that can be explained by the X variable. For family income (X) and academic achievement (Y), R^2 was found to be .25 for 6th grade students in their study of 55 elementary schools. This would lead to the incorrect conclusion that little variability in achievement scores can be explained by family income. However, that initial analysis was oblivious to a suppressor variable – the differences that existed between the two school districts that contained the sample of schools. When this suppressor variable (school district) was controlled in a re-analysis, the R^2 between family income and the 6th graders' academic achievement increased greatly to .88, indicating much of the variability in achievement scores could be attributed to differences in family income. This is exemplified as:

Variable			Relationship
X	Suppressor	Y	R^2
Family Income	School District	Student Achievement	↓
Family income		Student Achievement	↑

[16] Drs. Milner and Smollar did create what they called an "artificial variable" (Smollar deposition, page 191:6) in which they used a six month threshold in which a display of a behavioral problem was used to speculate on the existence of an antecedent behavioral problem prior to entering into OKDHS. At best this is a loose correlate, but certainly is no substitute for actually collecting antecedent information. This is a demonstration that their case record review was deficient, and required other variable types that would normally be considered in a more general ex post facto survey design.

Plaintiffs' experts did not consider any suppressor variables in the design of their case review survey instrument or their data analyses, and therefore their conclusions are subject to this error.

Distorter Variables – the actual relationship between two variables is reversed by a third variable. A distorter variable "converts a positive relationship into a negative relationship" (Rosenberg, 1968, p. 95) or it can do the reverse and convert a negative relationship into a positive relationship. This is shown as:

Initial Direction	Distorter Variable	Subsequent Direction
X > Y	Z	Y > X

An example is given by Schnore (1962, cited in Rosenberg, 1968, p. 96). A study of the median income of suburban residents was higher ($1,691) than for urban residents ($1,609) in Chattanooga, Tennessee. However, when re-examining incomes based on ethnicity (i.e., African American and Caucasians), it turned out both ethnicities actually earned more as urban residents (African American = $1,015, Caucasian = $1,918) than as suburban residents (African American = $819, Caucasian = $1,768). The distorter variable was the small proportion of African Americans residing in the suburbs as compared with the inner city. Schnore (reported in Rosenberg) found this reversal in four other cities as well. This is exemplified as:

Initial Income Result	Distorter Variable	Income Result Reversal
Suburban > Urban	Proportion of Ethnicity Per Area	Urban > Suburban

Plaintiffs' experts did not consider any distorter variables in the design of their case review survey instrument or their data analyses, and therefore their conclusions are subject to this error.

Summary – Drs. Milner and Smollar failed to consider the complexities[17] of survey design in general, and an ex post facto survey based on the case records review methods in particular. They gave no consideration to what is referred to as block-booked variables (mitigating or irrelevant variables) for any of the variables they examined. They did not consider:

[17] Dr. Milner testified in his deposition: "It's very important to remember with those -- those kinds of questions, that many of those questions would refer to a far more complex experimental research design than we conducted here (Page 410:8-11). Similarly, in her deposition, Dr. Smollar testified that none of these survey design factors were taken into consideration (Page 109-115; page 159). Of course, that forced them to create what they called an "artificial variable" (Smollar deposition, page 191:6) in which they used a six month threshold in which a display of a behavioral problem was used to speculate on the existence of an antecedent behavioral problem prior to entering into OKDHS. Their speculation (Dr. Smollar referred to it in her deposition as "innovation," page 191:18) would have been unnecessary had they taken these survey design factors into consideration.

- potential extraneous variables, and how they should be controlled,
- component variables (the sub-variables contained in complex variables that are intertwined with the construct of interest), and they should be controlled,
- antecedent variables (characteristics of the children prior to entering DHS), and how they should be controlled,
- intervening variables (e.g., lawfully/socially required variables the children were exposed to while at OKDHS) and how they should be controlled,
- suppressor variables (i.e. low correlation/incidence of a desirable OKDHS variable that is in fact due to the intrusion of a third variable – which cancels, reduces, or conceals a true relationship), and how they should be controlled,
- distorter variables (the presence of a third variable leads to a conclusion that is in fact the reverse of meaning of the data), and how they should be controlled,
- effects of covariates, conjoint variables, and stratifications,
- any other test factor (i. e., elaborators) necessary to understand the many two-variable relationships described in their tabled results.

Consequently, Drs. Milner and Smollar's findings in this report should not be relied on by the Court.

Sampling

Sample Size

Drs. Milner and Smollar referred to "statistically valid sample of cases."[18] There is no such thing as a statistically valid sample of cases. The origin of this meaningless statistical language appears to be in the retainer letter to Dr. Milner written by Marica Robinson Lowry, attorney for Plaintiffs:[19]

> The scope of your work concerns the review and analysis of a *statistically significant sample* of Oklahoma Department of Human Services (DHS) case records.[20]

Dr. Milner never corrected Plaintiffs' counsel to notify them there is no such thing as a statistically significant sample. (The result of a hypothesis test for a stated nominal α level may be statistically significant for a given sample; it is the hypothesis test that may be statistically significant – not the sample.)

Perhaps Drs. Milner and Smollar were referring to the minimum number of valid cases that will yield a specific confidence interval and precision level. This is an important key to Drs. Milner's and Smollar's statistical naiveté. They not only do not understand standard sampling nomenclature or principles (i. e., they use other phrases with no statistical meaning such as

---

[18] Ibid, p. 11. In Dr. Smollar's deposition she admitted she had no idea what this meaningless phrase means (page 86:7). The phrase "statistically significant sample" first came to my attention in an email dated April 5, 2010 written by Bill Kapell, Counsel for Plaintiffs, sent to Counsel for Defendants, including David Page who forwarded it to me on April 6, 2010. Presumably Drs. Milner and Smollar invoked this meaningless phrase because either they were so instructed by Plaintiff Counsel, or they did not have the expertise to explain to Counsel the phrase is meaningless.

[19] CSF Retainer Letter.pdf, dated April 14, 2010.

[20] Ibid, Page 1, italics added for emphasis

"sample population),"[21] they unnecessarily "resort-ed"[22] after selecting the congregate care subpopulation, and they do not understand how to determine an appropriate sample size for the given confidence interval and precision level they have chosen.

They appear to believe that the use of an on-line calculator to determine sample sizes yields a magic number that guarantees so-called "statistically valid" cases. Actually, there are many design parameters that must be considered in order to determine appropriate sample sizes. For example, it is necessary to consider key subgroups, as Weisberg and Bowen (1977) noted

> If you consider a 5 percent sampling error is reasonable, that would suggest a particular sample size...You might also want to consider the sampling error for subgroups that are of particular interest...A sample of 400, for example, gives an overall sampling error of 5 percent, but if about half that sample is female, then any conclusions about women would have a sampling error of 7 percent associated with them. If you want only a 5 percent sampling error for your statements about women, you will require a sample size of **800**, so that there would be about 400 interviews with women. (p. 40-41, bold added for emphasis)

There were many examples where subgroups yielded low frequencies because their sample size was too small. Drs. Milner and Smollar nevertheless considered those subgroups of sufficient importance to highlight their information through the use of boxed text in their Report. If these subgroups were of such importance their sampling strategy should have been larger to maintain their claimed confidence level and precision. Examples are compiled in Table 2 below:

Table 2. Subgroup Sample Sizes Ignored When Choosing The Sample Size

Variable	Page	Sample Size of Text Boxed Variable
Reason for Entry into OKDHS Custody	21	217-220
Placement Type	24	222
Alleged Maltreatment	27	≈ 45-75
Maltreatment Response	29	27
Alleged Perpetrator	30	103
Safety Assessment	33	45
Placement Number	39	30
Shelter Placement	45	18-78
Placement Outcome	49	31-100
Placement Change Reason	50	50-105
Service to Prevent Disruption	52	13-130
Behavioral Concerns	54	94-148
Agency Response to Behavior	55	21
Permanency Goal	63	1-152
Appropriateness of Permanency Plans	69	36-124
Reason Not Seen by Caseworker	71	1-94
Sibling Separation Justification	78	15-62

[21] Report p. 4, Appendix E Page 186
[22] Ibid, p. 14.

Plaintiffs' experts never considered that the many subgroups captured in the plethora of contingency tables were predetermined to have less confidence and/or poorer precision due to the size of their subgroups, and as a result, the Court should not assume any subgroup analyses are accompanied by their claimed confidence level and precision.

Sample Size Calculation

Formula. Drs. Milner and Smollar indicated in their report that they used "The Survey System, accessed at http://www.surveysystem.com/sscalc.htm#one."[23] They did not indicate in their report the formula used by this calculator or the underlying assumptions the formula is based on. The formula is provided on the link http://www.surveysystem.com/sample-size-formula.htm (see Appendix 1.) It is the normal theory ("Z") approximation formula.[24] This formula has various assumptions and limitations.

1. It is a large sample formula, meaning confidence intervals for low incident count entries, rows, or columns in the r × c tables will be inaccurate.[25]
2. The formula becomes less accurate as the percentages approach 0% or 100%.[26]
3. This formula assumes the parent population from which the sample was obtained is normally distributed. Obviously, much of the ex post facto survey sought information of "yes" or "no" (i.e., 1 or 0), which is binary data. Binary data are not distributed according to the de Moivrean (or Gaussian) curve.
4. The calculator on the web page they cited only provides two tailed confidence intervals.[27]
5. If a result indicates a 4% or 96% occurrence, the confidence intervals must be non-symmetric.[28]

Missing values and valid cases. A very important sampling issue is the consideration of the potential of missing values. (The implication of missing values will also be discussed below in the sections on "Data Entry and Cleansing" and "Data analysis" below.) The sample size provided by the on-line calculator Drs. Milner and Smollar accessed presumes there are no missing values, or stated statistically, that the given sample selected contains 100% valid cases for all "1,134 items" (Report, p. 13), as well as the entries in all r × c tables subsequently produced. This obviously did not occur, nor could it, because there were missing values or less than 100% valid cases throughout the SPSS (PASW) data sets created by Drs. Milner and Smollar (see, e. g., Table 2 above).

---

[23] Ibid, p. 11. However, in her deposition, Dr. Smollar admitted she had no idea what www.surveysystem.com was (88:17), or who in fact accessed this website, other than it was "someone at CSF" (88:24-25).

[24] In her deposition, Dr. Smollar indicated she had no idea what formula was used by this sample size calculator in forming confidence intervals, Page 91:18-20; Page 92:15-93:1; 93:15-17.

[25] E.g., see Table 2.

[26] E. g., for percentages approaching zero, see Table 2; approaching 100% see their report.

[27] Where absolute standards exist (e.g., zero percent incidence or 100% compliance), one-tailed confidence intervals are more appropriate than two-tailed confidence intervals.

[28] As the percentage approaches zero or 100, two-sided confidence intervals exceed the floor of 0% and the ceiling of 100%, respectively.

As the number of valid cases decreases, the confidence decreases and its associated precision width increases (i. e., it gets worse). When Dr. Smollar was asked in deposition what would be the impact on the 95 confidence level and five percent precision interval if there were less than 100% valid cases, she replied that she did not know.[29] When she was asked if she checked on any analyses that contained less than 100% valid cases she replied, "I don't understand the question,[30] and:[31]

> 8-12 Q. Did you determine for any of the items, over a thousand items, how many of them you had actual reported data as opposed to missing data? So, for example, you have 374 cases; I suppose on one particular item you might have 350 responses?
> 13 A. Uh-huh.
>
> 14-15 Q. Some of them you may have 374. Some of them you may have 200. Did you do that kind of calculation?
> 16 A. Yes. They are in the tables.
>
> 17-18 Q. Okay. And did you make any evaluation as to how that would affect your confidence interval?
> 19 A. No. I don't know why we would do that.

and again,[32]

> 22-23 Q. So of all of those 1,164, did you always have 374 valid responses?
> 24 A. No.
>
> 25 Q. Okay. And where would I be able to find a list
> Page 98
> 1 Q of which of those 1,164 items had less than 374 responses?
> 2-3 A. Well, for anything that's in the report, you would find it in the report.
>
> 10-12 Q. Do you know whether or not, for every item on the case review instrument that has a smaller number of valid responses, the confidence interval decreases?
> 13 A. I don't know.

---

[29] Page 94:5-16, 117:23-25. On 118:1-4 Dr. Smollar stated she would just exclude the cases from the analysis – but of course if they were missing they would automatically be excluded from the analysis without any action on her part. She may be unaware of the difference between listwise/casewise deletion (a variable is deleted for all analyses if any part is missing) vs. pair-wise deletion (a variable is deleted only for that specific analysis where any part is missing). The default in PASW (SPSS) is listwise/casewise deletion. (There are many imputation methods used as alternatives to deletion of missing values.) Obviously, the choice of deletion method impacts the resulting statistical analyses.

[30] Deposition, page 95:2

[31] Ibid, Page 95

[32] Ibid, Page 97

14-17 Q. Do you know whether or not, if any item on the case review instrument has missing values, whether or not it will require a larger sample size than 374 in order to have a representative sample?
18 A. You are going to have to repeat that again.

19-24 Q. Let me see if I can do a better job. Is it true that any item on the case review instrument that has missing values will require a larger sample size than indicated by the calculator, that is 374, in order to keep your confidence interval of 95 percent plus or minus 5 percent?
25 A. No.

Page 99
1 Q. You don't know that?
2-3 A. No, it would not. It would be smaller. If we had fewer –

4-5 Q. If you had fewer valid responses, then your confidence interval would drop, correct?
6-8 A. If we had fewer, no, if we had fewer -- I am still not sure what you are asking. Can you give me an example? That would help.

9-16 Q. Well, I am not sure I can give you an example. This is a matter of sampling theory, is what I am trying to get at here, about confidence intervals, where you want to have a 95 percent confidence interval plus or minus 5 percent. And my question is: Isn't it true and understood to maintain that high of a confidence interval and that small of an error factor plus or minus 5 percent, you have to have at least 374 valid responses?
17 MR. DeMURO: Form.
18 THE WITNESS: I don't know.

Drs. Milner and Smollar stated, "The first 351 cases were used in the sample population, and the additional 50 were chosen as a precautionary oversample in the event that we needed to reject cases from the original sample because they did not meet the sampling criteria. Using the oversample of cases was ultimately unnecessary for the case review."[33] Although an additional 50 cases would not suffice to reach the sample size estimated by the on-line calculator for many of the contingency tables they produced,[34] Drs. Milner and Smollar inexplicably never availed themselves to the additional cases that stood ready and were easily at their disposal.

Drs. Milner and Smollar did not realize, nor take any steps to mitigate the fact that any item on the case review instrument that has missing values requires a larger sample size than that indicated by the on-line calculator they relied on. Thus, as illustrated elsewhere in this report, the actual confidence level can be below 50% for subgroup analyses.

[33] Ibid, p. 15.
[34] See Table 2 above.

Random Selection

Although Drs. Milner and Smollar reported using a random number generator located at http://www.random.org[35] (see Appendix 2) to select their sample, Dr. Smollar testified in her deposition that neither she nor Dr. Milner actually used the random number generator:[36]

> 16-19 A. In terms of the whole study I know the one thing that I know Eliza did was do the, run the random numbers sample draw. So she drew the sample running the random numbers.
>
> Q. Is this -- sorry to interrupt you, but I want to make sure it is clear. Is this the sample of 374 --
> 22 A. Yes.
>
> 23-24 Q. -- from the population that was requested by Children's Rights from Oklahoma children?
> 25 A. Yes.

and in fact Dr. Smollar had never even been to that website:[37]

> 5 Q. Did you do any investigation of www.random.org?
> 6 A. No. I have never gone into that website.

With regard to the random number generator at http://www.random.org, the authors of that web site purported to provide a so-called true random number generator. It has been made available since 1988, but the earliest so-called peer review article on the generator is dated 2003. None of the nine articles cited on this web site (at the time of the submission of my report) are peer reviewed examinations of the random process used per se; they refer to articles wherein the generator was employed in some application or was simply mentioned. There is no citation of a peer reviewed article regarding the veracity of the generator. For example, the citation by Haahr (2006, 815-816) doesn't even mention www.random.org in the body of the encyclopedia entry; it is merely cited in "Additional Readings." In other words, the citations on that web site amount to advertising for their product, not a validation of their product's validity.

As Sawilowsky (2009), among others, has pointed out, so-called true random number generators should not be used when the sequence needs to be replicated in order to be verified. Not only is it impossible for the Plaintiffs to reproduce their random sequence, no other interested party (e.g., in this case the Defendant) can reproduce it. I am familiar with many tests for randomness, but it can be shown mathematically that there is no way to prove that the user of a so-called true random number generator has not discarded a small portion of case IDs that were randomly selected, and continued drawing additional random case ID numbers until it matches case IDs predetermined to be exceptional in some fashion.

PASW[38] (now IBM SPSS) and Excel,[39] the two software packages used extensively by the Plaintiffs' experts, either directly contains a pseudo-random number generator, or has many

---

[35] Ibid, p. 13.
[36] Page 23. In her deposition, Dr. Smollar suggested it was determined in a discussion with "Eliza" (89:11).
[37] Page 106

commercial add-in modules, that provide a seed number in order to create a replicable sequence of pseudo-random case IDs. There appears to be only one reason why they failed to use the capabilities of these two software programs at their disposable, which would have made their random selection process transparent to the Court, and instead they chose a true random number generator that cannot be replicated by anybody:[40]

> 18-20 Q. Are you suggesting that a pseudorandom number generator and use of a seed number is not used to select random cases for sampling?
> 21 A. I don't know.

They simply did not know. Regarding the inability of the Court to reproduce Plaintiffs' experts' sampling methodology, Dr. Smollar testified in her deposition,[41]

> 22-25 Q. Do you know whether or not the method that was used to select the random cases is reproducible, that is the check for randomness can be reproduced by an investigator?
> Page 90
> 1-2 A. Yes. I believe that they actually, that we actually did it twice to make sure of that.

Her answer is inaccurate and the description of her replication is untenable.[42] It is impossible to use the so-called true random number generator at http://www.random.org and replicate the sequence. (See Appendix 3a – 3d. In 3a, I accessed the website and requested 374 so-called true random integers from 1 – 6,500. The results are displayed in Appendix 3b. In Appendix 3c I replicated the request, and the results are displayed in Appendix 3d. Visual inspection shows the two sequences are not replicated.)

Thus, there is a very serious issue the Court should consider, apart from the Plaintiffs' experts' shell game with who actually determined the sample size and who actually used the so-

---

[38] PASW v. 18 help page for RNG, SEED, and MTINDEX Subcommands (SET command): "If you need to reproduce the same randomized results in the future, you can set the initialization value for the random number generator. The initialization value applies to the current session only. It is automatically reset to the default at the start of each new session.

SEED={integer | RANDOM} Initialization value for MC random number generator. The value must be a positive integer that is less than 2,000,000,000 or the keyword RANDOM, which randomly sets the initialization value. The default is 2,000,000.

MTINDEX={value | RANDOM} Initialization value for the MT random number generator. The value can be any positive or negative value, including fractional values (expressed as decimals), or the keyword RANDOM. The default is 2,000,000."

[39] Commercial and free-ware examples are http://www.treeplan.com/risksim.htm and http://home.uchicago.edu/~rmyerson/addins.htm, respectively.

[40] Dr. Smollar's deposition, page 107

[41] Page 89

[42] Dr. Smollar's explanation given in deposition was indecipherable to me. When she was asked how did she make sure they were random, she replied they subsequently used random tables to see if there were any differences the second time (a meaningless process) and found no differences (a meaningless conclusion) (Page 89:3-9). On Page 92:3-5 she admitted she only looked at the web page after the fact.

called true random number generator: The Plaintiffs' experts' choice of a so-called true random number generator obviated the use of a seed number, and hence the random sequence it produces *is not replicable by anyone*, including the Court.[43] In contradistinction, pseudo-random number generators require a seed number or multiple seed numbers. This permits other scientists to verify the sequence that was produced by simply supplying the same seed number and re-executing the generator.

Representativeness

Sawilowsky (2004) emphasized the importance of testing for representativeness after random selection to ensure the randomization scheme was successful. Drs. Milner and Smollar failed to conduct any formal test of representativeness of the sample they selected with the accessible population[44] of children in foster care in Oklahoma, although they claimed, "Proportionally, the sample population is generally representative of the total population of children in custody as it relates to the child's most recent case plan goal,"[45] and similarly, "indicating a representative sample."[46] Both descriptions are just assertions. They failed to conduct any statistical test to verify the sample was representative (e.g., Chi-Square, Kolmogorov-Smirnov), a standard practice mentioned in elementary research textbooks (e. g., Krathwohl, 1993; Tuckman, 1994).

They admitted, apparently by eye-balling[47] their data, that "There is a larger discrepancy between the data sets for the Native American group (12.7 percentage point difference

---

[43] I had been asked by counsel for Defendant to advise regarding "PLAINTIFF CHILDREN'S MOTION REGARDING UNRESOLVED ISSUES PERTAINING TO THEIR EXPERT'S REVIEW OF DHS'S CASE FILES," dated April 19, 2010. This motion asked for a variance in the scientific method of random sampling, wherein Plaintiffs obtained the sampling frame, but subsequently wanted Defendants to produce case records piecemeal.

Plaintiffs implied that OKDHS would be dishonest and fail to preserve the integrity of the case records if they knew which records would be selected: "The second major problem with DHS Defendants' approach is that DHS Defendants refuse to preserve the integrity of the case files selected by Dr. Milner, thereby negating his entire data collection effort. In particular, DHS Defendants seek the ability to perform and document additional casework on the identified cases after the files are identified but before they are turned over, and even to add documents to the files after they have already been reviewed by Dr. Milner's case reviewers. If DHS is allowed to alter the case files in this manner, the files will not accurately reflect DHS practice and the results of Dr. Milner's case review will be highly unreliable," (p. 3; this accusation was repeated on page 8).

I advised Defendants' Counsel to decline. To do what Plaintiffs asked would be contrary to the purpose of random sampling procedures, because it would allow Plaintiffs to conduct analyses on a subset, potentially alerting them to some non-random selection of cases that might skew results. Ironically, the Plaintiffs' experts then invoked a random sampling procedure that is not transparent and that cannot be replicated by the Court.

[44] Another indication of Dr. Smollar's lack of expertise in this area is that she was unaware that a parameter is a characteristic of a population, meaning a parameter is a census count. See her deposition 87:10. (In contrast, a statistic is a characteristic of a sample.)

[45] Report, 2011.02.17 CSF Foster Care Review, Appendix E Page 186.Appendix E, page 186

[46] Ibid, p. 23

[47] Dr. Smollar testified in her deposition that no statistical tests were conducted; instead, determinations were made, "Just visually," (Page 125:20; Page 142:8-21). Even though she

between the case review sample and the 2009 RTC data) and the Two or More Races – Non-Hispanic group (17.3 percentage point difference between the case review sample and the 2009 RTC data)."[48] Their admission leaves open the possibility that there are other, potentially vital, categories with systematic error of non-representativeness.[49]

Although Dr. Milner and Smollar considered comparisons between the sample and the population for Case Plan Goal and Placement Type (at least via eye-balling the frequencies),[50] they did not do so for other child characteristics, such as gender, ethnicity, etc. They provided no statistical methodology to determine if the sample was, or was not, representative of the accessible population of the Oklahoma foster care accessible population that they sampled, and hence, they have no scientific basis on which their claim of representatives can be evaluated.[51]

The open question of representativeness had repercussions in their report. Drs. Milner and Smollar's literature review on relative placements concluded that "placing children with relatives promotes stability in the living situations of children in foster care,"[52] but their sample of OKDHS children demonstrated the opposite of stability, with 53.9% being disrupted.[53] When asked in deposition if this might be indicative of a flaw (e.g., sampling), Dr. Smollar was unable to explain the discrepancy.[54]

Similarly, they were not able to use the sample results to reflect on the accessible population of children in foster care in OKDHS, as noted by Dr. Smollar in her deposition:[55]

> Page 200
> 9-12 Q. Do you claim, Doctor, that the median of 23 months accurately reflects the median length of stay of all children in Oklahoma DHS foster care as of March 1st, 2010?
> 13 A. No.
>
> 16 Q. Do you claim that this median of 23 months accurately reflects the median length of stay of all children in DHS custody as of June 1st, 2010?[56]

---

claimed to be aware of statistical tests used for this purpose, she chose not to use them (Page 126:5-10); instead, just relied on "eyeballing" (Page 239:12-13).

[48] Ibid, p. 21

[49] In her deposition, Dr. Smollar admitted to the large discrepancy, could not explain why she failed to conduct a statistical test to determine if her sample was significantly non-representative, and did not know that if this category was non-representative. This admission leaves as tenable the possibility that all other categories may also be non-representative (Page 128-131).

[50] Ibid, p. 186, 187

[51] Dr. Smollar testified in her deposition (135:24, 136:1) that no formal statistical tests were conducted to validate the sample's representativeness with the accessible population. In any case, even if she had done so it would have been done incorrectly, because she proposed that a t test could be used to determine if the frequencies in the sample were representative of the accessible population (136:5).

[52] Report, page 49

[53] Table 18

[54] Deposition, pages 183-185

[55] Page 200

[56] There is confusion regarding the end date being either March 1 or June 1, 2010. The earlier March 1, 2010 date was defined as "the sample date for the review" (Report, Page 13), and

17 A. All children, no.

Thus, Plaintiffs' experts admit their sampling was ineffective to represent the accessible population of children in OKDHS care.

Psychometrics and Inter-rater Reliability

Procedural Flaws

Drs. Milner and Smollar stated "We pilot-tested"[57] the case review instrument. In deposition, it turned out that Dr. Smollar denied being an expert in inter-rater reliability, had never conducted one, and the primary person responsible for conducting it was "Ms. Hirsch," even though Dr. Smollar was unaware of any expertise that Ms. Hirsch might have[58]

In order to conduct a proper inter-rater reliability the raters/judges/reviewers cannot be told of the purpose of the case review, the allegations, or even the existence of a law suit. This is because it is a fundamental principle in estimating inter-rater reliability that the raters are independent from each other, and are unbiased toward what they are rating (e. g., James, Demaree, & Wolf, 1984; Hoyt, 2000). Independence is a mathematical assumption of the Kappa statistic. If raters are informed by the Plaintiff as to the purpose of their ratings, they may systematically become more severe[59] in their ratings.

Moreover, Drs. Milner and Smollar stated, "CSF conducted an inter-rater reliability (IR) review of 9.1 percent (n=34) of the cases selected in the sample,"[60] "at the beginning of the reviewer's tenure on the project."[61] However, they did not exclude those 34 cases and select a fresh 9.1% from their sample reservoir, or return to draw additional cases from the population, which they are required to do.

The importance of excluding the pilot cases is easily understood with the analogy of teaching people a card game by playing a few hands with the cards face up. As the game progresses the rules and strategy are explained, discussed, and agreed to. However, once this training period has concluded the results of the demonstration hands are summarily discarded;

---

many descriptive statistics used that as the end date. However, Drs. Milner and Smollar changed the end date for the sample willy-nilly to June 1, 2011 for many other descriptive statistics. This creates a problem in making inferences from their sample to the accessible population. Also, the probabilities associated with their confidence intervals assume random sampling was conducted independently from a sampling frame that did not change during the sampling process, which was violated during this additional three month period. (See, e.g., Johnson, 1996, p. 455.)

[57] Report, p. 13. Dr. Smollar admitted she had little to do with the inter-rater reliability, and testified in her deposition (Page 19:21 and 20:12-16) that "Ms. Hirsch" was responsible for it (and on page 35:23 the person responsible for conducting it was "Stacey".) On 22:13 she admitted she had never conducted an inter-rater reliability analysis, and nor is she an expert (22:20). In her deposition on pages 31-33, she referred to four "test cases" of unknown origin that she believed were not a part of the final database, but she believed were part of the protocols pilot conducted prior to the actual inter-rater reliability analysis.

[58] Dr. Smollar admitted she was unaware of any expertise held by Ms. Hirsch to conduct an inter-rater reliability study (23:3). On 35:2 she admitted the cases that were used to conduct the inter-rater reliability remained in the database of 374 cases.

[59] Or lenient if they represent the Defense.

[60] Report, p. 14

[61] ibid

they are not included in the official score. Thus, Drs. Milner and Smollar should have discarded the pilot rating cases, because the communication between the group to reconcile differences in rating then changes the consistency with which the raters perform their tasks subsequent to the pilot.

In addition, Drs. Milner and Smollar then failed to compute the inter-rater reliability on the complete survey. The pilot reliabilities only provide promise of consistency of ratings; the surveyors are always required to compute the inter-rater reliability for the complete sample, as indicated by Sawilowsky (2000) among others. As a consequence of these failures, the inter-rater reliability calculations in their report must be presumed to be inflated, and the data are less reliable than they Drs. Milner and Smollar represent.

Biased Confidence Intervals

Nunally and Bernstein (1994) noted, "Before establishing confidence intervals, one must obtain estimates of **unbiased** scores...These true scores are estimated as follows: $t' = r_{XX} X$," (p. 25, bold added for emphasis). In the context of Drs. Milner and Smollar's report, this means their confidence intervals must be built around the obtained proportion multiplied by the inter-rater reliability. Y*et, Plaintiffs' experts failed to consider the impact of building confidence intervals around proportions obtained for variables when the inter-rater reliability was less than 1.0 (e.g., Report, p. 14), and hence, any stated or implied confidence intervals (e.g., Report, p. 13) are biased.*

Violations of "rules" in test construction

A basic tenet of writing an item is one question – one item. Having multiple stimuli in a question precludes meaningful analysis. Drs. Milner and Smollar violated this basic tenet, for example, with their survey items C1.64, C1.65, and C1.66 in their Report. These items pertained to an alleged maltreatment report. They prompted the case records reviewer to determine if the allegation was either (a) unfounded - services recommended, (b) substantiated - services recommended, or (c) substantiated - court involvement recommended. Placing three stimuli in the same item makes subsequent disaggregation impossible. Clearly, "unfounded-services recommended" means the maltreatment allegation was dismissed, and should *not* be combined with the other two categories.

I note that another of Plaintiffs' experts, Mr. John Goad, was cognizant of this and took care to avoid the error in Drs. Milner and Smollar's survey. Mr. Goad noted that the Oklahoma Administrative Code separated these three categories.[62] In Mr. Goad's analysis, he made certain to avoid placing (a) unfounded - services recommended together with the categories of (b) substantiated - services recommended and (c) substantiated - court involvement recommended.[63]

Another basic tenet of writing an item is one answer – one item. In their survey, Drs. Milner and Smollar allowed the case reviewer to pick one reason and ignore others in response to certain items. For example, regarding the reason for a lack of contact, the review's instruction was to enter only one reason, leaving it up to the case reviewer to select a reason to the exclusion of any others.[64] Hence, a benign reason might never have entered into the data

[62] "Review Of The Response By The Oklahoma Department Of Human Services To The Suspected Abuse And Neglect Of Children In Its Care by John Goad, A. M., Dated March 15, 2011," page 29.
[63] Ibid, page 30
[64] Ibid, page 130. Grid 2-G(4)

analyzed by Drs. Milner and Smolar, and its mitigating impact on the Report's finding would subsequently be ignored.

Point-in-time vs. repeated measures

Drs. Milner and Smollar's study excluded children whose stay was less than 60 days in OKDHS custody.[65] Of course, this automatically skewed all data analyses, as discussed below in the section on analysis. Part of their reasoning for excluding these cases, according to the latter's deposition, was to evaluate the "Broader picture."[66] I am unaware of any research design technique of excluding data that will produce a "broader picture."

However, I am aware of a research design requiring the taking of repeated measures in order to obtain a broader picture, particularly if there is a need to support an allegation of trend. The limitation (or "fault"[67]) of a point-in-time study, even if it is retrospective for a period of many days, is that the data change daily. A time series design, for example, permits trend analyses by plotting moving averages. This is not possible in a point-in-time study.

Data Entry and Cleansing

Grace and Sawilowsky (2009) noted the importance of thorough data entry and cleansing protocols, particularly with regard to the importance of handling missing values and extreme values.

Missing values

Appendix 4 contains an example where values that are missing (either because there is no information available or the stimulus is non-applicable to the case) are incorrectly recorded as zero. Zero is a valid response; a missing value is not a valid response. Missing values plague various aspects of the entire corpus of Dr. Milner and Smollar's data sets.

Outliers and Inliers

Of particular concern is the transference on input files from Excel to SPSS. Dr. Smollar testified in her deposition that she didn't even know what is an input file,[68] and she further misattributed errors that occurred in the importing process of an input file:[69]

> 15 Q. But there were mistakes on the SPSS?
> 16-17 A. Right. The mistakes occurred in the patching into the SPSS file.
>
> 18-21 Q. Okay. Now I think you are answering the question I just asked you a minute ago. What was the cause for the mistakes? What do you mean by patching into the SPSS file?

---

[65] Page 78-79 of her deposition.
[66] Page 79:7 of her deposition.
[67] Salahu-Din (2003), p. 297
[68] Deposition, Page 49:22. Dr. Smollar's testimony indicated she also had no idea what is an output file. (It is just the output of the computer run.) It isn't clear what she assumed it is, but she testified she would not keep output files, and would only refer to one if there was "something odd about it, I would have gone back and looked at the data to determine what was wrong," (50:16-19).
[69] Deposition, Page 54

22-25 A. Well, the Excel files have to be transferred into SPSS. So there is a merge, there is a merge process. And we were using SPSS 18, which is a new 25) version of SPSS. And it -- I don't know what happened
Page 55
1 A basically, but it screwed up. That's all I can say.

2 Q. Have you done this before, that is take Excel
3 data and load it onto SPSS?
4 A. Yes.

5-6 Q. Have you ever had this problem occur in past experience?
7 A. Occasionally.

8-9 Q. And what were the reasons for the problems in the past?
10-11 A. Usually it is just something in the merge process that goes wrong.

12 Q. Could you explain to the court what the merge process is.
14-15 A. Not technically because I am not that familiar with how the software is designed.

16 Q. Is SPSS designed to accept Excel files?
17 A. Yes.

18-19 Q. Has Ms. Zimmer ever merged data from Excel to SPSS files in the past?
20 A. I don't know.

Dr. Smollar's explanation is inaccurate. There is no reason an import from Excel to PASW (SPSS) will not work, whether done through (a) the point and click command sequence File | Open | Data | Files of type: Excel(*.xls, *.xlsx, *.xlsm), (b) a "getfile" command in a PASW (SPSS) syntax box, or even (c) a simple cut (Ctrl-C) and paste (Ctrl-V). There is no "something in the process that goes wrong" with Excel or SPSS; the error lies with the person performing the task using the software incorrectly.

Dr. Smollar's approach to checking the veracity of the data import was also of concern. Naively, she assumed that just luckily happening to notice outliers (i.e., values that are out of range) is sufficient to alert her that the data were imported by the software user incorrectly:[70]

1-2 Q. And can you recall what the oddity was that you observed that caused you to want to rerun the SPSS?
3 A. Yes.

5-17 A. What happened was there would be -- say I was running an analysis of the frequency of particular, of a particular item where the options were 1, 2, or 3, and I am running the frequency of that item, and I am seeing 5s and 6s and 4s. So that was a red flag. So I looked at the data. And there turned out to be quite, there turned out to be a few of these and at least three at one time. And so at that point I contacted Shelby. Oh, first I looked at the original data for that

[70] Deposition, page 52

> item in Excel files because I also had the original Excel file. I had that, Shelby send me that as well. And the data were different.
>
> 18 Q. What data were different?
> 19-25 A. So the difference -- the data in the original Excel file and the data in the SPSS file were not the same for that particular item. So it turned out that Shelby had discovered that when she was entering the data, somehow when she entered the data from Excel to SPSS, she did something, and I don't know what, but it threw the, it threw off so that the items were not
> Page 53
> 1-6 A showing up correctly. So we basically had to go back and recheck every single data for every single SPSS item, every single SPS -- the data in SPSS for every single item to make sure it matched the Excel file. So that was why in those cases the output was odd. And so I just didn't save the output.

As Grace and Sawilowsky (2009) explained, the problem with their naïve approach in the above deposition exchange is that it fails to consider the potentially more insidious data entry errors called inliers, which are "within range erroneous data points," (p. 306). Inliers are invisible to Dr. Smollar's "red flag" of out of range variables. A common outcome of ignoring these types of errors is that statistical analyses tend toward the median, leading to false negatives.[71]

The Data Analysis

Exclusion of children less than 60 days in OKDHS care

In her deposition, Dr. Smollar was asked why she and Dr. Milner decided to exclude children from their case records review who were in OKDHS care for less than 60 days:[72]

> 8-10 Q. Okay. And why was it decided that the population would have a requirement that the children be in care at least 60 days?
> 11-17 A. Well, the main reason for that is that children who are -- if you look at study of short-term foster care, children who are in foster care for short periods of time, usually under 60 days, often have experiences that are different from those in foster care for longer periods of time. So we wanted to capture the experience of children from that 60-day point on.

This is an admission that Drs. Milner and Smollar made a blatant decision to defeat the purpose of random sampling, and ostensibly served to stratify[73] the children into two groups (i.e., in care < 60 days, and in care ≥ 60 days) but then eliminating the children in the first stratum from analysis. This maneuver *guaranteed* that all of their data analyses would be skewed.

---

[71] I received Dr. Smollar's deposition at about 5:00 pm Friday, June 3. Due to Sabbath and Jewish *Shavuot* (holyday) observances that only gave me five business days prior to when this report was due, and as such, I was not able within that time period to search for the existence of other outliers, or inliers, in her port from Excel to SPSS (PASW).

[72] Deposition, page 57

[73] Despite Dr. Smollar's testimony that due to issues in legal papers they could only stratify on congregate care or not.

Moreover, in her deposition arguing against stratification, Dr. Smollar mentioned that one of the main purposes for stratifying is when there is a concern for demographic variables. She stated a simple random sample was preferred, due to their being no interest in stratification, and in so doing specifically mentioned age:[74]

> 15-19 Q. Well, I am trying to understand why you decided that a demographic stratification was not helpful to this study. I thought you said a few minutes ago that there was no theoretical basis to do that. And I am trying to understand what you meant by no theoretical basis.
> 20-25 A. Oh, okay. There is nothing that indicates that we would have to look at a particular characteristic in order to better understand a particular event when I say a demographic characteristic. So there just was no need to do that. The purest way to go in sampling is a pure random sample without stratification. And as long as we
> Page 104
> 1-2 A. could do that and feel comfortable with that, we are happier to do that.
>
> 3-6 Q. When you say there is nothing, are you suggesting that there is no study out there that indicates that the demographics of a child are not important to their experience in foster care?
> 7 A. Oh, no, that's not what I was saying.
>
> 8-9 Q. Well, I am having a hard time following you then, Dr. Smollar.
> 10-17 A. Okay. Again, I am not a sampling expert. Normally when you stratify it is because you are concerned that a particular population would not be well represented if you did random, a randomized process. We had no reason to assume that, in other words, that we wouldn't get a good cross section of kids in different ages, kids of different races, and kids of different -- well, age, race.

In other words, Dr. Smollar's "pure" random sample was selected because stratification was not necessary, and yet the first step undertaken by Dr. Smollar prior to conducting any data analyses was to stratify (or "categorize") based on length of time in care and summarily exclude that stratum (or "category" of children in care < 60 days) from her analyses. Later in her deposition,[75] Dr. Smollar testified even when stratification in sampling was unnecessary, she did not see a need to conduct any analyses based on stratifications (or "categories") in her report.

Excluding children whose stay was less than 60 days certainly skewed all analyses.[76] For example, Drs. Milner and Smollar reported the median length in stay for children in OKDHS care was greater than the national average. When asked if the exclusion of children with less than 60 days would impact the median length of stay, Dr. Smollar admitted it would have decreased it.[77] Her deposition testimony was most revealing:[78]

---

[74] Deposition, page 103
[75] Deposition, page 106:15-24
[76] In other words, it not only adversely impacted length of stay, but by excluding those children it adversely impacted *all analyses* conducted in their report.
[77] Deposition, 202:14-15
[78] Ibid, page 202

25 Q. By excluding less than 60 day children, is that a
page 203
1-2 typical method by which to assess median length of stay, that is excluding the 60 day children?
3 A. No.

4-6 Q. Have you seen anyone else do it the way you have done here, that is exclude the children in care less than 60 days when you are assessing median length of stay?
7 A. No.

Their methodology of determining the median length of stay was simply indefensible.

Robust measures

There are consequences of (a) coding missing data as zeros, (c) analyzing legitimate zeros when they are high incident, and (c) there is the presence of a few extremely high[79] or low values in a data set. These conditions adversely impact the use of classical measures of central tendency (i.e., the arithmetic mean), and therefore the use of robust measures of central tendency are required. Plaintiffs' experts apparently recognized this when they occasionally relied on the median instead of the mean. The finite breakdown point of the arithmetic mean is 1/N, meaning a single datum can skew the average to an arbitrary degree. The median, which is more robust, has a finite breakdown point of approximately ½, which is far more robust than the mean. However, there are more modern robust measures of central tendency, such as the trimmed mean, which have an even higher finite breakdown point. This means they provide a far more robust analysis than even does the median.

For example, consider the Milner/Smollar – Bates 109212 document titled case_worker_visits(1) found under file path Jacky Smollar. Their computed mean for case worker visits is 90.7%. A robust measure of central tendency is the 20% trimmed mean (Wilcox, 1996, p. 16), which yields 98.48% for this item. With an estimated asymptotic standard error = .005, the approximate 95% confidence limits are 97.48% - 99.48%. There is a major difference in interpretation between 90.7% and 98.5%, and the 98.5% result was arrived at with a far more robust statistical technique.

Cross-validation

If Plaintiffs' experts had conducted an appropriate ex post facto survey by considering potentially extraneous variables, and had calculated more sophisticated contingency tables, they then could have used, among other techniques, log linear modeling[80] (Agresti, 1990; Kennedy, 1983, Wickens, 1989) to provide the opportunity to conduct a cross-validation. Log linear analysis is a method of fitting more comprehensive, sophisticated models to contingency table data than the simple and naïve recitation of percentages performed by Drs. Milner and Smollar in their report.

An important component of this approach is the use of cross-validation, which is a scientific method of validating the understanding arising from the case records. In a cross validation, half of the sample is randomly selected, the log linear analysis is conducted on it,

[79] E.g., "nine years", Report, p. 58 "nine years."
[80] Dr. Smollar is aware of this procedure (Deposition, Page 117:11-12); apparently she just chose not to invoke it.

and the resultant models are then applied to the other half of the random sample, in order to validate the descriptive findings of the Case Review. *Plaintiffs' experts' reliance on naïve r x c contingency tables precluded their ability to conduct log linear analyses and provide for a cross-validation of the survey results.*

Reality Check

A very importance aspect of all ex post facto survey designs is the concept of internal validity. It refers to the accuracy of the data contained in the records.[81] One method to establish internal validity is to conduct a reality check, wherein a small random sample of records is randomly selected. The results of those records are then compared with an independent check to verify information from primary sources. For example, if a record indicates a caseworker visit did not take place during a 30 day period, the researcher would locate and interview the caseworker to confirm there was no visitation during that period. Without conducting a reality check there is no independent confirmation of reliability of the data base. A case records review is "wholly dependent on the accuracy, completeness" of the records.[82] *Plaintiffs' experts failed to conduct any form of a reality check.*[83]

> 14-17 Were any reality checks made with the caseworkers, the case managers, any investigation beyond the file to determine that the information in the records was correct?
> 18 A. No.

This is problematic, as explained by Rich (2009)[84] in the context of juvenile sexual offenders:

> Despite the importance of records, depending on them as either a complete, consistent, or accurate record of the juvenile's life is a serious error. Assuming the infallibility and accuracy of the record may not only result in a poor and sloppy evaluation, but also in an inaccurate evaluation in which conclusions about the juvenile and his or her level of risk have been made without sufficient or adequate information or made in error. It is the evaluator's responsibility, then, to check the accuracy of prior records, whenever possible and certainly when gaps in the record are present, as well as inconsistencies, inaccuracies, or questionable information, and not simply pass on such information as accurate. In such an instance, the evaluator is not only passing along weak or inaccurate information, but he or she is actively contributing to a record that is weak or inaccurate.

Plaintiffs' experts' refusal to accept the responsibility to conduct a reality check, therefore, is tantamount to actively contributing a flawed evaluation to the records of the children in OKDHS care.

---

[81] In the hospital case records review arena this frequently arises in terms of the legibility of physician's handwriting.
[82] Woloshynowych,Neale, & Vincent (2003), p. 411
[83] Dr. Smollar's deposition, Page 112
[84] Page 302

Inappropriate Conversion of Continuous Variables into Discrete variables

The instrument used by Dr. Milner and Smollar has continuous variables (e.g., age) broken into discrete variables.[85] The practice of converting continuous variables into discrete variables leads to inappropriate data analysis.[86] This is a deliberate throwing away of information. In her deposition[87], Dr. Smollar claimed the theoretical underpinning for breaking age into uneven bins is based on developmental psychology.[88] If the veracity of her argument for the uneven age bins is given, it raises the question once again on why she did not stratify based on age, or at least use stratification by age in her analyses of the contingency tables in the report.

However, other continuous variables that were broken into uneven bins were done so without any theoretical underpinning, such as, for example,[89] time in shelter. Dr. Smollar testified in her deposition that these uneven bins were created by Dr. Milner, but she was unable to explain the basis for doing so.[90] When she was asked if uneven bins are impervious to statistical analysis she incorrectly stated "Probably not. Well, it doesn't have any impact on the statistical analysis given that analysis is based, when you do a chi-square..."[91] To the contrary, the Chi-squared test[92] is entirely dependent on the bin size, because that determines the frequency of counts within it.

Misuse and Misunderstanding of the Chi-Squared Test for Contingency Tables

Unordered vs. Singly Ordered and Doubly Ordered r × c Contingency Tables.

The Chi-squared test is appropriate only when both the row and column are discrete variables, which is called an unordered r × c contingency table. Using the Chi-squared test in the presence of singly or doubly ordered contingency tables does not just violate some technical cannon – it can lead to incorrect results.[93] For example, in a study comparing different tests in

---

[85] Examples include Report Page 40, Table 13, Page 41 Table 14, Page 42 Table 15, Page 47, Table 17, Page 60, Page 64, Page 83, Page 84.

[86] E. g., Cohen, et al., 2003; Maxwell & Delaney, 2003; Rosyton, Altman, & Sauerbrei (2006); See Harrell (http://biostat.mc.vanderbilt.edu/wiki/Main/CatContinuous) for additional references. For an example of a case record review where categorical and continuous variables are properly maintained and evaluated, see Jones (2002, p. 45-46).

[87] Deposition pages 157-158

[88] Note however, in her deposition (204:3-4) she admitted the 12 to 18 month division was of her own doing, whereas she claimed there the usual developmental psychology sanctioned bin is 12 to 24 months.

[89] The other examples are number of placements in Tables 14 and 15, shelter care placements in Table 16, time in shelter in Table 17, time in custody in Table 21, time prior to goal of adoption established in Table 26, and frequency of sibling visitation in Table 30, of their report.

[90] Pages 179-181

[91] Page 158:18-20

[92] Assume for the sake of the argument the Chi-squared test is appropriate for ordered categorical variables, which it is not.

[93] Singly ordered r × c contingency tables can be analyzed with the Kruskal-Wallace, normal scores, Savage scores, or ANOVA with arbitrary scores tests. Doubly ordered r × c contingency tables can be analyzed with the Jonkheere-Terpsta or linear-by-linear association tests. Both singly and doubly ordered r × c contingency tables can be analyzed with logistic (and other) regression techniques. Although Dr. Smollar testified in her deposition correctly in her knowledge about Chi-square (page 116:17-24), she indicated she was familiar with McNemar's

this design, Posch (2002) cited eight examples from peer-reviewed psychology and education literature where the use of the Chi-squared test led to statistical significance, whereas had the correct test been conducted the results would not have been statistically significant. The applied situations pertained to psychological functioning, trait and state anxiety, mathematics achievement, infant and preschool evaluation, and motor anxiety.

Consider Dr. Milner and Smollar's example pertaining to age by time in shelter.[94] For the sake of an illustration, pretend there is some justification to turn continuous variables into categorical variables, pretend it is appropriate to create uneven bins, and pretend there were no extraneous variables necessary to consider, as they have done. A correct test for age by time in shelter is the $r \times c$ doubly ordered Jonckheere-Terpstra test (H_o: rows identically distributed). It is statistically significant ($p < .05$), indicating time in shelter (e.g., < 30 days) is less regardless of age. This result is contrary to their conclusion.

Furthermore, a correct test for simply time in shelter (H_o: ≤ 30 days; H_a: > 30 days), again making all the pretensions indicated above, is the sign test, which is statistically significant ($p < .05$), with n=189 less than 30 days. Hence, the data in Table 18 indicate the 30 days is being met with a statistically significant number of shelter placements. (The sign test, which in this case only requires entering 189 and 220, is commonly found with online calculators, such as http://www.graphpad.com/quickcalcs/binomial1.cfm). This, too, is contrary to their negative conclusion and was not reported.

The examples of the misuse of the Chi-squared test in the presence of a doubly ordered $r \times c$ contingency are compiled in Table 3 below:

Table 3. Inappropriate Use of the Chi-Squared Test
For Doubly Ordered r ×c Contingency Tables

Report Page	Table	Type
40	13	Doubly Ordered
41	14	Doubly Ordered
42	15	Doubly Ordered
60	*	Doubly Ordered
64	*	Doubly Ordered
64	*	Doubly Ordered
83	*	Doubly Ordered
84	*	Doubly Ordered

Note: * = reference to Chi-square test conducted by Drs. Milner & Smollar.

The reason the appropriate data analysis method was not used was because Drs. Milner and Smollar didn't know about it:[95]

---

test (which would be appropriate for correlated 2×2 contingency tables) but not sufficiently so to use it. She was unaware of Gart's test which is an extension that permits analyses for ordered effects.

[94] Page 47, Table 17.

[95] Dr. Smollar's deposition, Page 116. Similarly, regarding Table 21 on page 59 of the Report, Dr. Smollar admitted time was a continuous variable (Deposition, Page 206) and incorrectly stated that Chi-squared is an appropriate statistics if it had been converted into an ordered categorical variable. Moreover, she testified the decision to create categorical bins out of

25 Q. Are you familiar with the concept of an unordered
Page 117
1 row by column contingency variable?
2 A. Unordered, I don't know what that means.

3-4 Q. Are you familiar with the concept of a singly, S-I-N-G-L-Y, ordered contingency variable?
5 A. That term is not familiar to me.
6-7 Q. Are you familiar with the term doubly ordered contingency variable?
8 A. Term not familiar.

Misunderstanding of the meaning of the Chi-squared test

Drs. Milner and Smollar's understanding of the meaning of the Chi-Squared test is incorrect. They claimed results in their r × c tables indicate "Very strong associations (*based on the size of the Chi-Square*)."[96] Their statement is generally false. First, the Chi-square must be statistically significant for the strength of the association to be significant (Cohen, 1988, p. 10; Robinson & Levin, p. 23; Sawilowsky & Yoon, 2002, p. 144). If it is not statistically significant the effect of the association is read as zero regardless of the magnitude of the Chi-squared statistic.

Second, the size of the Chi-squared (χ^2) statistic only relates to the strength of association when the marginal Total (N) is held constant, but not when they differ. This can be demonstrated by considering the Squared Contingency Coefficient (CC^2) which one of many measures of the strength of the association. (I decline to illustrate this with the Chi-squares they reported because many of them were the wrong statistic to be computed, or they inappropriately included missing values as valid cases.) CC^2 is defined as

$$CC^2 = \frac{\chi^2}{\chi^2 + N}.$$

Consider two statistically significant Chi-squared results: (1) χ^2 = 10 and N = 40, and (2) χ^2 = 75 and N = 373. The CC^2 in the first example is .2, whereas in the second example it is only .17. Even though the magnitude of the Chi-squared statistic is 7.5 times larger in (2), it represents only 83.7% of the strength of association as does (1).

Missing values (also discussed above in relation to valid cases)

Missing values should not have been recorded as a zero in any r × c contingency table. Consider, for example, the excerpt from the file "Milner 115567.sav" (see Appendix 3) for variables labeled B4.30 – B4.38. These items are defined as

- 4.30 Service was available, but there was a waiting list
- 4.31 Eligibility requirements were not met
- 4.32 Service was available only out of state and there were no funds available to access the service
- 4.33 There were problems with scheduling times

---

continuous variables and then conduct the Chi-squared test was hers, and she didn't recall Dr. Milner overriding that decision (Page 211-212).

[96] Report, page 70, italics added for emphasis.

- 4.34 Service was available, but no transportation was available to access services
- 4.35 Parent would not consent to service
- 4.36 Child would not consent to service and refused to cooperate
- 4.37 Caregiver did not facilitate access to services and case manager/supervisor did not make other arrangements
- 4.38 Service provider refused to provide service to eligible child (p. 149).

The directions indicate, "Enter 1 for all that apply and 0 for those that do not apply" (p. 149). If the item does not apply, the correct response should have been some code to indicate not applicable, because zero is a valid response.

Sparse data sets

Asymptotic p values should not be used when computing probabilities associated with statistics obtained in the analysis of sparse contingency tables. A sparse contingency table arises when there are a number of bins with zero counts. Mehta and Patel (1995, p. 32-34) gave an example pertaining to the ratio of faculty to students vs. a specific organization outcome, with a sample of size N = 250 colleges and universities. This is analogous to the ratio of caseworkers to children vs. a specific OKDHS outcome.

The use of the Chi-square statistic in the example provided by Mehta and Patel (1995) yielded p = .03 via the asymptotic p value, meaning there was statistical significance between the faculty/student ratio and that specific outcome. However, a reanalysis using an exact p value for Chi-square yielded p = .11, which was not statistically significant. To restate, the probability of the Chi-square employed in sparse data sets may show a significant association or interaction when in fact there is none. *Plaintiffs' experts inappropriately relied on asymptotic p values for sparse contingency tables when they should have used exact (or Monte Carlo) p values to evaluate the significance of hypothesized associations or interactions.*

Indirect standardization of rates

Naïve proportions or rates are easily misunderstood because of the differences in metric due to extraneous variables. Indirect standardization is a method to compensate for this problem. For example, Stark and Mantel (1966) found there were 412 mongoloid first born children out of 731,177 live births in Michigan from 1950 – 1964, which is 56.3 per 100,000. There were 740 mongoloid births during the same period for children who were the 5th or later born children during the same time period, or 167.1 per 100,000. The proportion favoring 5th born or later births over first born children is a mongoloid rate of 167.1 to 56.3, or a 2.97 to 1 chance of an undesirable outcome for 5th or later born children.

However, maternal age is obviously related to birth order, and also is known to be associated with the delivery of a mongoloid child. When the rates are adjusted via indirect standardization (Indirect Adjusted Rate, or IAR) via

$$IAR = R_p \frac{R_{S1}}{R_{S2}},$$

where RP is the crude population rate, R_{S1} is the rate of first born children in the first sample, and R_{S2} is the rate for 5th or later born children in the second sample. Results for first born children were found to be 93.3 per 100,000, whereas for 5th or later born children the rate was 84.7 per 100,000. Based on indirect standardization of the data, the results initially obtained from interpreting the naïve r × c table are reversed. There is actually a 1.1 to 1 greater chance

that a first born child will be mongoloid than will a 5th or later child when taking maternal age into consideration. *Plaintiffs' experts did not use indirect standardization in their calculations, or any other related adjustment, in any of their reported proportions. Thus, their sample proportions may not only be incorrect in terms of magnitude, they may also be incorrect in terms of direction, as compared with their associated population proportions.*

Stratification (also discussed above)

"Due to the nature of the issues raised in the legal documents in the case, we determined that stratifying the sample along various characteristics of the children was unnecessary with the exception of children in congregate care."[97] The nature of the legal issues are not mentioned, so it is not possible to evaluate the reasonableness of Dr. Milner and Smollar's decision not to stratify based on various important child characteristics, or on related environment or institutional characteristics. One thing is certain: Dr. Smollar had no idea what issues in legal documents would lead to not stratifying:[98]

> 6-14 Q. Do you know that sentence I just read about the nature of the issues raised in the legal documents in the case, why that would relate to a decision as to stratifying? It says there in that second sentence of the second paragraph under sampling process: Due to the nature of the issues raised in the legal documents in the case, we determined that stratifying the sample along various characteristics of the children was unnecessary.
> 15 A. No, I don't know what that means.

In any case, this ill-advised sampling decision precluded the use of any data analysis where stratification (i.e., multi-way contingency table)[99] analysis was necessary. In deposition, Dr. Smollar testified,[100]

> 20-21 Q. Okay. Who was it that determined how the sample or the sampling would be accomplished?
> 22 A. That would be Jerry Milner.
>
> 23 Q. Okay. Did you have any role in that?
> 24-25 A. Jerry asked me -- well, we had a discussion right initially about the sampling. And we both agreed
> Page 25
> 1-11 A. that we did not want to do a stratified sample, we did not want to do a cluster sample, we did not want to do a weighted sample, that we wanted this to be a very pure sampling process. So we both agreed that that's where we were coming from. As far as anything else to do with the sampling, I was not involved in it. I was -- I did participate in a telephone call with someone at Temple University about stratifying for one particular group of kids. And those were kids

---

[97] Report, p. 11.
[98] Deposition, Page 102.
[99] Dr. Smollar correctly indentified multi-way contingency tables and its proper analysis (i.e., logistic regression) in her deposition on Page 117:9-19; however she apparently decided not to incorporate her knowledge where appropriate in her study.
[100] Deposition, page 24

> in congregate care. So I was in on that phone call. But that was basically my role.

Although they postulated an unnamed person at Temple University[101] can explain the unnamed issues raised in legal documents that at first prevented stratification but subsequently permitted stratifying on congregate care vs not, certainly Drs. Milner and Smollar[102] cannot explain it.

Misuse of precision level

Drs. Milner and Smollar chose a 95% confidence interval with a precision level of ±5%. They don't understand the meaning of the precision level. The ±5% is applied to the obtained point estimate. For example, in their report[103] they indicated "The differences in percentages of children in specific age groups between the case review sample and the data from the RTC are quite small, indicating a representative sample with regard to age distribution at time of entry into OKDHS custody." The tabled entry indicated 5.1% of the children in the Report to Congress were over 16 when entering foster care, as compared with only two children in their OKDHS study. Dr. Smollar approximated this at .5% (2/374 = .0053 ≈ .5%). She testified[104]

> 1-2 Q Is it your testimony, Doctor, that the difference between .5 percent and
> 5.1 percent is quite small?
> 3-4 A. Given the confidence interval that we established, yes.

Actually, the 95% confidence interval would be .0053 ± 5%(.0053) = .0053 ± .00027 = [.0051, .0056] or .51% to .56%. Clearly, 5.1%, being 9.1 times larger than the upper bound of .56%, indicates the OKDHS sample is not representative of the study in the Report to Congress, and the difference is not "quite small," but rather is quite large.

Non-reporting of mitigating results

Drs. Milner and Smollar reported,

> The key findings with regard to the maltreatment of children while they are in OKDHS custody are the following: **21.4** percent of children in the sample were the subject of a maltreatment allegation while in OKDHS custody that was substantiated or where there was sufficient concern to recommend services even though the allegation was not substantiated; 12 percent of children in the sample were the subject of a maltreatment allegation while in OKDHS custody that was substantiated.[105]

However, Drs. Milner and Smollar did not[106] report the result of their item C1.62 on their survey, "According to information in the case file, was the child's most recent entry into OKDHS

---

[101] In her deposition, Dr. Smollar indicated this unnamed person was "the consultant that Jerry contacted" (Page 109:16-17) to randomly select those in congregate care.
[102] She stated in her deposition (page 25:15) "I am not a sampling statistician." Similarly, 96:9, 104:10, 109:18.
[103] Report, page 23, Table 4 and final bullet point
[104] Smollar deposition, page 134
[105] Ibid, p. 26, bold added for emphasis

custody the result of a report alleging child abuse or neglect that was investigated or assessed and the finding of the investigation or assessment was either substantiated-services recommended or substantiated-court involvement recommended?" (Report, p. 115). Had they reported the analysis of this variable, they would have noted that **98.7%** (n = 369) of the children entered into OKDHS as a result of an allegation of child abuse/neglect that was investigated/assessed that was either substantiated-services/substantiated-court recommended, as noted in the SPSS output in Table 4 below.

Table 4 Response to C1.62.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	369	98.7	98.7	98.7
	No	5	1.3	1.3	100.0
	Total	374	100.0	100.0	

Moreover, based on an analysis of C6.50 – C6.85 (Report, p. 179), none of the 5 (1.3%) children who did not enter OKDHS as a result of abuse/neglect had an abuse/neglect incident while in OKDHS custody. To summarize, Drs. Milner could have stated that none of children who entered OKDHS without an abuse/neglect allegation had one during their custody, and of the 98.7% who did have a prior substantiated allegation, that figure was reduced dramatically to 21.7% during their custody.

Dr. Smollar undertook a very unusual stance on the many variables for which data were collected but she refrained from analyzing and/or including in her report.[107] She admitted the only variables she chose to analyze and report were those which (a) were issues of concern, and (b) met some unnamed post quality assurance level of quality:

> 1-5 Q. Okay. I would have assumed that if you collected information you would have thought that information was important. And so my question is: When did you decide that the information wasn't pertinent for your report that you collected based on question 1.62?
> 6-11 A. I don't know when I decided that. But as I was going through and doing the analysis, I was focusing primarily on questions, items that were particularly relevant to the issues of concern, or the issues -- yes. Yes, I guess that's the best way to state it. So there were lots of items that I didn't do an analysis for.
>
> 12-13 Q. How did you select which ones you were going to do an analysis for and which ones you were not?
> 14-16 A. The ones I selected, there were a couple things. One was if I didn't like the quality of the data, if I wasn't happy with the quality of the data --
> 17-18 Q. This is -- I am sorry to interrupt you. This is after the quality assurance was done?
> 19 A. After the quality assurance.

---

[106] On page 33, they presented a text box of a subset of n = 344 (92%) "of families had at least one prior maltreatment report before the report that resulted in the child's most recent entry into OKDHS custody."
[107] Deposition, page 228

Failure to conduct statistical tests in order to support conclusions[108]

There were a number of statements where Drs. Milner and Smollar drew conclusions on data where it would have been expected the support for such statements were obtained from conducting hypothesis tests, but in fact no such inferential statistic was computed. An example: "A key finding of the age analysis is that by June 1, 2010, 81 (21.7%) children were adolescents (i.e., age 13 or older) compared to 35 (9.4%) children being adolescents at the time of entry. This suggests that children are aging in foster care rather than entering foster care at older ages."[109] However, they failed to conduct a statistical test to compare with the two age groups.

Another example: "A key finding is that the use of shelter care for children in the sample did not increase the likelihood of future placement stability for those children. In particular, of the 222 children whose initial placement was in a shelter care facility, 84.2 percent (187 children) had at least two additional placements after the shelter placement, i.e., they experienced three or more placements while in OKDHS custody."[110] However, they neither collected appropriate data in their case records review in order to conduct a likelihood statistic, and nor did they conduct a formal test of likelihood. Moreover, they did not compare a randomly selected comparison group to determine the impact of not using shelter care on the number of placements while in OKDHS custody. Their conclusion, therefore, is speculation. There are numerous other such examples in their report.[111]

Yet another example pertained to their statement regarding the period of time necessary for 354 children who had not been discharged at the time of their June 1, 2010 period of review.[112] They speculated on how long it would be, even though there was nothing in the case records review that would support their speculation, and nor did they conduct any prediction analyses.

Perhaps the most blatant example was a part of their report where even a formal inferential statistic could not have helped to support their conclusion. They claimed, "These data suggest that although one-half of the children in the sample may have entered OKDHS custody with behavior problems (although we cannot confirm this), a large percentage of identified behavior problems appear to have arisen during the child's stay in OKDHS custody."[113] This was worse than mere speculation, because the antecedent variable of initial diagnosis of behavioral problems was not a part of their data collection. Instead, they created an "artificial variable",[114] an "innovation", [115] (because they failed to consider the importance of antecedent variables in their survey design) to support their conclusion.

---

[108] Although Dr. Smollar testified in deposition that she is "not a sampling statistician" (e.g., Page 25:15), she indicated she had taken coursework in statistics and she was able to name two excellent statistics textbooks (Guilford & Ferguson), (p. 66:23). Presumably, therefore, she is aware of how to conduct hypothesis tests, but simply choose not to with the exception of a few (inappropriately applied) Chi-squared tests.

[109] Report, p. 24.

[110] Ibid, p. 48.

[111] E. g., Page 44 of Report and Page 178-179 of Dr. Smollar's deposition with regard to placement stability, and if given the opportunity to actually conduct a hypothesis test she testified she would not (Page 182:24-25, 183:1).

[112] Report, Page 58

[113] Report, page 56

[114] Smollar deposition, page 191:6

[115] Ibid page 191:18)

My opinion, based on the Report and Drs. Milner and Smollar's deposition, is that despite conducting a few Chi-squared tests (albeit incorrectly), these two Plaintiffs' experts do not believe a case records review requires anything more than simple one variable tables and naïve r × c contingency tables, when in fact

> [t]he next element requires the identification and application of the appropriate analysis tools. Methodologies exist that incorporate varying sensitivities and specificities. Each methodology has one or more specific ranges of applicability including fields and time frames. Significant among these are ... applied algorithm, validity analysis, outcomes assessment, statistical analysis modalities.... These constitute reliable tools that contribute unique insights that can be applied individually or in combination with other methodologies in the framework process review.[116]

Vignettes

A child's profile (or vignette) was displayed on Page 27 of their Report.[117] It appears the vignette was not chosen on the basis of random selection.[118] Nor does it appear to have been selected by a standard technique based on qualitative research methods, as might be done, for example, in a blended research design. There was no attempt to provide vignettes for high success stories of children while in foster care (e.g., increase in academic achievement, stability of home life, improved affect or other personality variables, increased positive social interaction, etc.) It is inappropriate, and it is cherry-picking for the sole purpose of depicting the OKDHS in the light of the bias of the researchers. It appears to be a subliminal approach to projecting specifics unrelated to the discussion on the page to the entirely of the sample, if not the entire population.

Reaching Beyond A Case Records Review and Imputing Nonexistent Data

Dr. Milner and Smollar stated, "We decided to examine this in more detail because it suggested that OKDHS was not carefully matching children with placement resources that were able to meet their needs, but instead placing children wherever a bed could be found."[119] However, there was no variable in their data collection instrument that would permit answering this question. For example the officials in charge of making placements were not surveyed to ascertain their reasons for placing children, and hence the statement "wherever a bed could be found" is speculation.

Drs. Milner and Smollar stated, "We understand that in some situations, child welfare agencies make brief initial placements for children entering foster care, and may even use those placements to assess the child's needs and find an appropriate placement match so that future placement settings for the child are stable. However, this does not appear to be the case with

---

[116] Wilen & Marden, http://www.intlhorizons.com/article-aafs-caserecords.htm

[117] Vignettes also appear, gratuitously, in their Report on pages 27, 30, 31, 38 (2), 42, 45, 51, 58, 60, 76, and 80.

[118] Dr. Smollar, who Dr. Milner relied on for her technical expertise, testified in her deposition (153:3-15) that she did not participate in their selection; she indicated Dr. Milner was responsible for selecting cases to portray in a vignette, and Dr. Milner did not even consult her on including the vignettes.

[119] Report, p. 43

the children in the sample, as they did not experience greater placement stability over time."[120] However, they computed no analysis to determine the placement stability rate for those who were assessed via a brief initial placement as compared with those who were not in a brief initial placement for this reason, which of course would not be possible without a repeated measures or time-series research design. Because no such analysis was conducted, their conclusion that there was not increased placement stability over time is unwarranted speculation and unsupported by their case records review.

Dr. Milner and Smollar stated "For one-half of the children in the sample, the child's behavior problems were not identified until the child had been in custody for at least six months,"[121] and "These data suggest that although one-half of the children in the sample may have entered OKDHS custody with behavior problems (although we cannot confirm this), a large percentage of identified behavior problems appear to have arisen during the child's stay in OKDHS custody."[122] However, none of the 1,134 variables in the case records review determines when a child's behavioral problem is initiated, nor is there any aspect of a case records review that permits speculation in making causal attributions.

Recommendations from Literature are Made Contrary to Data Collected

Dr. Milner and Smollar advanced an argument[123] supportive of placement with relatives. Of 243 children[124] that were so placed 53.9% "disrupted."[125] Ergo, Dr. Milner and Smollar's survey results contradict the literature they cited (i.e., Koh, 2010; Koh & Testa, 2008; Webster, Barth, & Needell, 2000), and they appear to make their placement recommendation despite suitability.

Poor measurement practices obviated meaningful data analysis on alleged maltreatment of children while in OKDHS foster care

Drs. Milner and Smollar wrote many pages[126] pertaining to the issue of alleged maltreatment of children in foster care. Of course, allegations are secondary to actual substantiated incidents of maltreatment. Due to improper measurement practices in constructing the instrument, they were incapable of producing evidence capable of directly addressing this issue.

As mentioned in the section above regarding psychometrics, and repeated for clarity: For example, items C1.64, C1.65, and C1.66 in their survey instrument pertained to maltreatment reports where a child was identified as a victim. Each of these three items prompted the case records reviewer to determine if the allegation was either (a) unfounded - services recommended, (b) substantiated - services recommended, or (c) substantiated - court involvement recommended. Placing three stimuli in the same item violates an elementary rule of test construction (one item - one stimulus), because otherwise subsequent disaggregation would be impossible. Clearly, unfounded-services recommended means the maltreatment allegation was dismissed, and should not be combined with the other two categories. Dr.

---

[120] Report, p. 43
[121] Ibid, p. 55
[122] Ibid, p. 56
[123] Ibid, p. 48-49
[124] Ibid, Table 18
[125] Ibid, p. 49
[126] Ibid, 26-34

Smollar could not explain how any disaggregated analyses would be possible based on this flaw in the instrument design.[127]

In analyzing this section on maltreatment allegations it is important to recognize that for each date of an allegation the case records reviewer could input up to three different types of allegations, even if they were all part of the same incident. Thus, the percentages in their Table 8 ("Types of Alleged Maltreatment Identified in the 132 Initial Maltreatment Reports")[128] sums to 138%. To summarize: the tabled results refer to types of allegations, not the number of incidents in which there was an allegation.

They began the section on maltreatment by (a) hiding the numbers, (b) citing only percentages, and presenting frequencies for variables that sum to 138%.[129] They claimed 21.4 percent of the children in the sample were subject to a maltreatment allegation with 78% of the alleged perpetrators being foster parents.[130] Next, they attempted to bolster their report with the hyperbole of boxed text and vignettes.

After whittling out allegation from substantiation, they then switched gears from types of allegations to number of cases in which there was an allegation. They were left with Table 9 "Findings of Formal Investigations."[131] The operative part of this table indicated there were 41 substantiated-services recommended and 4 substantiated – court intervention recommended cases. It would be expected that Drs. Milner and Smollar would then break down cases into type of maltreatment. Of course they couldn't do so, because they can't disaggregate variables C1.64, C1.65, and C1.66 in their survey instrument.

Drs. Milner and Smollar purported their sample was random. They noted percentages in their Table 8 related to "substantiated – recommended services" and "substantiated – court involvement recommended". Apart from the measurement problem that makes their entire section on maltreatment disaggregable and problematic, and the sum of frequencies of types of allegation is *138%*, at least they could have projected estimated statistics, as I have computed and compiled in Table 2 below. Certainly no type of maltreatment should ever occur, but it is also certain that Drs. Milner and Smollar went to a herculean effort to create a message in their section on the experiences of foster children in OKDHS that is substantively different from that in Table 5 on the following page.

---

[127] Report, pages 223-226.The problem arose in Table 30, Page 80 of their report, regarding the combining of "No frequency specified" with "no visitation plan."

[128] Ibid, 28

[129] See Huff, D. (1954), *How to lie with statistics*, NY: Norton; Wheeler, M. (1976*), Lies, damn lies, and statistics*, NY: Liveright. There are many examples in their report of citing only percentages in text boxes or bulleted points, with the actual numbers appearing elsewhere (e.g., in a table on the following page).

[130] Report, page 26

[131] Ibid, page 29

Table 5. Estimated N by Maltreatment Type (NOT INCIDENTS) for Substantiated – Recommended Services (N = 41) & Substantiated – Court Involvement Recommended (N=4).

Type	Table 8 N→	41	4
	Table 8 %↓	S-R	S-C
Neglect – lack of supervision	0.386	11.74036 ≈ 12	1.145401 ≈ 1
Physical abuse	0.356	10.82789 ≈ 11	1.05638 ≈ 1
Neglect – environmental, medical, and educational	0.167	5.079377 ≈ 5	0.495549 ≈ 1
Emotional abuse/mental injury	0.121	3.680267 ≈ 4	0.35905 ≈ 0
Sexual abuse/exploitation	0.121	3.680267 ≈ 4	0.35905 ≈ 0
Person responsible for child Not competent to parent (due to substance abuse or mental illness	0.106	3.224036 ≈ 3	0.31454 ≈ 0
Failure to protect/ exposure to domestic violence	0.053	1.612018 ≈ 2	0.15727 ≈ 0
Child endangerment	0.015	0.456231 ≈ 0	0.04451 ≈ 0
Other	0.023	0.699555 ≈ 1	0.068249 ≈ 1
	Estimated Corrected N →	41	4

Notes. S-R = Substantiated – Recommended Services; S-C = Substantiated Court Involvement Recommended. Because the frequencies sum to 138%, note that this table refers to type, not children in foster care, meaning a single incident can account for multiple types.

References

Agresti, A. (199). *Categorical data analysis*. NY: Wiley.

Baker, A. L., & Charvat, B. J. (2008). *Research methods in child welfare*. NY: Columbia University Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182.

Bonnet, D. & Bentler, P. (1983). Goodness of fit procedures for the evaluation and selection of log linear models. *Psychological Bulletin*, *93*, 149-166.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation for the behavioral sciences*, 3rd ed. Mahwah, NJ: Erlbaum, p. 256.

Depoy, E., & Gitlin, L. N. (2005). *Introduction to research: understanding and applying multiple strategies*. Maryland Heights, MO: Elsevier, p. 106

Grace, T., & Sawilowsky, S. (2009). Data error prevention and cleansing: Overview for instructors of statistics and their students. *Model Assisted Statistics and Applications*, *4*(4), 303-312.

Haahr, M. (2006). Random numbers. In (N. J. Salkind, ed.) *Encyclopedia of measurement and statistics*, *3*, 815-816. Thousand Oaks: Sage.

Harrell, F. Problems Caused by Categorizing Continuous Variables. http://biostat.mc.vanderbilt.edu/wiki/Main/CatContinuous. (Retrieved on 6 May 2011).

Hoyt, W. T. (2000). Rater bias in psychological research: When is it a problem and what can we do about it. *Psychological Methods*, *5*(1), 64-86.

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, *69*(1), 85-98.

Johnson, R. (1996). *Elementary statistics*, 7th ed. Belmont: Duxbury Press/Wadsworth.

Jones, L. (2002). A follow-up of a Title IV-E program's graduates' retention rates in a public child welfare agency. In, K. Briar-Lawson and J. L. Zlotnic (Eds). *Research in child welfare: Improving outcomes through university-public agency*. Hayworth Press, p. 45-46.

Kennedy, J. (1983). *Analyzing qualitative data*. NY: Praeger.

Krathwohl, D. R. (1993). *Methods of educational and social science research*: *An integrated approach*. NY: Longman

Landrum, P. K., Schmidt, N. D., & McLean, A. (1995). *Outcome-oriented rehabilitation: principles, strategies, and tools for effective program management*. Rehabilitation Institute of Chicago Publication: Aspen Publishers.

Maxwell, S. E., & Delaney, H. D. (1993). Bivariate median splits and spurious statistical significance. *Psychological Bulletin*, *113*, 181-190.

Mehta, C., & Patel, N. (1995). *StatXact 3 for Windows: Statistical software for exact nonparametric inference*. Cambridge, MA: Cytel.

Nunally, J. C., & Berstein, I. (1994). *Psychometric theory*, 3rd ed. NY: McGraw-Hill.

Robinson, D. H., & Levin, J. R. (1997). Reflections on statistical and substantive significance, with a slice of replication. *Educational Researcher*, *26*, 21-26.

Posch, M. A. (2002). Asymptotic and exact tests in 2 × C ordered categorical contingency tables with StatXact 2.0 - 4.0. *Journal of Modern Applied Statistical Methods*, *1*(1), 167-175.

Rich, P. (2009). *Juvenile sexual offenders: A comprehensive guide to risk evaluation*. Hoboken, NJ: Wiley.

Rosenberg, M. (1968). *The logic of survey analysis*. NY: Random House.

Rosyton, P., Altman, D. G., and Sauerbrei, W. (2006), Dichotomizing continuous predictors in multiple regression: A bad idea. *Statistics in Medicine*, *25*, 127–141.

Salahu-Din, S. (2003). *Social work research: An applied approach*. Boston: Pearson.

Sawilowsky, S. (2004). Teaching random assignment: Do you believe it works? *Journal of Modern Applied Statistical Methods*, *3*(1), 221-226.

Sawilowsky, S. (2007). Ancova and quasi-experimental design: The legacy of Campbell and Stanley. (In S. Sawilowsky, Ed., *Real data analysis*, A Volume in Quantitative Methods in Education and the Behavioral Sciences: Issues, Research, and Teaching, Chapter 15). American Educational Research Association Educational, Educational Statisticians. Greenwich, CT: Information Age Publishing.

Sawilowsky, S. (2009). Very large and huge effect sizes. *Journal of Modern Applied Statistical Methods*, *8*(2), 597-599.

Sawilowsky, S. (2000). Reliability. *Educational and Psychological Measurement*, *60*, 196-200.

Sawilowsky, S. (2011). Statistical fallacies, misconceptions, and myths. *International Encyclopedia of Statistical Science*. NY: Springer, 1412-1417.

Sawilowsky, S. S., & Yoon, J. (2002). The trouble with trivials (p > .05). *Journal of Modern Applied Statistical Methods*, *1*(1), 143-144.

Scholl, T. O., Chen, X., Sims, M., & Stein, T. P. (2006). Vitamin E: Maternal concentrations are associated with fetal growth. *American Journal of Clinical Nutrition*, *84*, 1442-1448.

Simpson, E. H. (1951). The interpretation of interaction in contingency tables. *Journal of the Royal Statistical Society*, B(*24*), 162-166.

Smith, M. J. (1990). *Program evaluation in the human services*. NY, NY: Springer, p 72-73.

Stark, C. R., & Mantel, N. (1966). Effects of maternal age and birth order on the risk of mongolism and leukemia. *Journal of the National Cancer Institute*, *37*(5), 687-698.

Stevens, J. P. (1984). *Cross validation in the loglinear model*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Thompson, F. T., & Levine, D. U. (1997). Examples of easily explainable suppressor variables in multiple regression research. *Multiple Linear Regression Viewpoints*, *24*, p. 12.

Tuckman, B. W. (1994). *Conducting educational research*. (4th ed.). Fort Worth, TX: Harcourt Brace.

Weisberg, H. E., & Bowen, B. D. (1977). An introduction to: Survey research and data analysis. San Francisco: Freeman.

Wickens, T. (1989). *Multiway contingency tables analysis for the social sciences*. Hillsdale, NJ: Erlbaum.

Wilcox, R. R. (1996). *Statistics for the social sciences*. San Diego, CA: Academic Press.

Wilen, S. B., & Marden, J. M. *The science of case records review: Far beyond applying a fine-toothed comb*. http://www.intlhorizons.com/article-aafs-caserecords.htm. Retrieved 3 May, 2011.

Wilson, R. M. (2003). Reviewing case record review. *Quality Safety Health Care*, *12*, 402–403

Woloshynowych, M., Neale, G., & Vincent, C. (2003). Case record review of adverse events: A new approach. *Quality Safety Health Care*, 2003, *12*, 411–415.

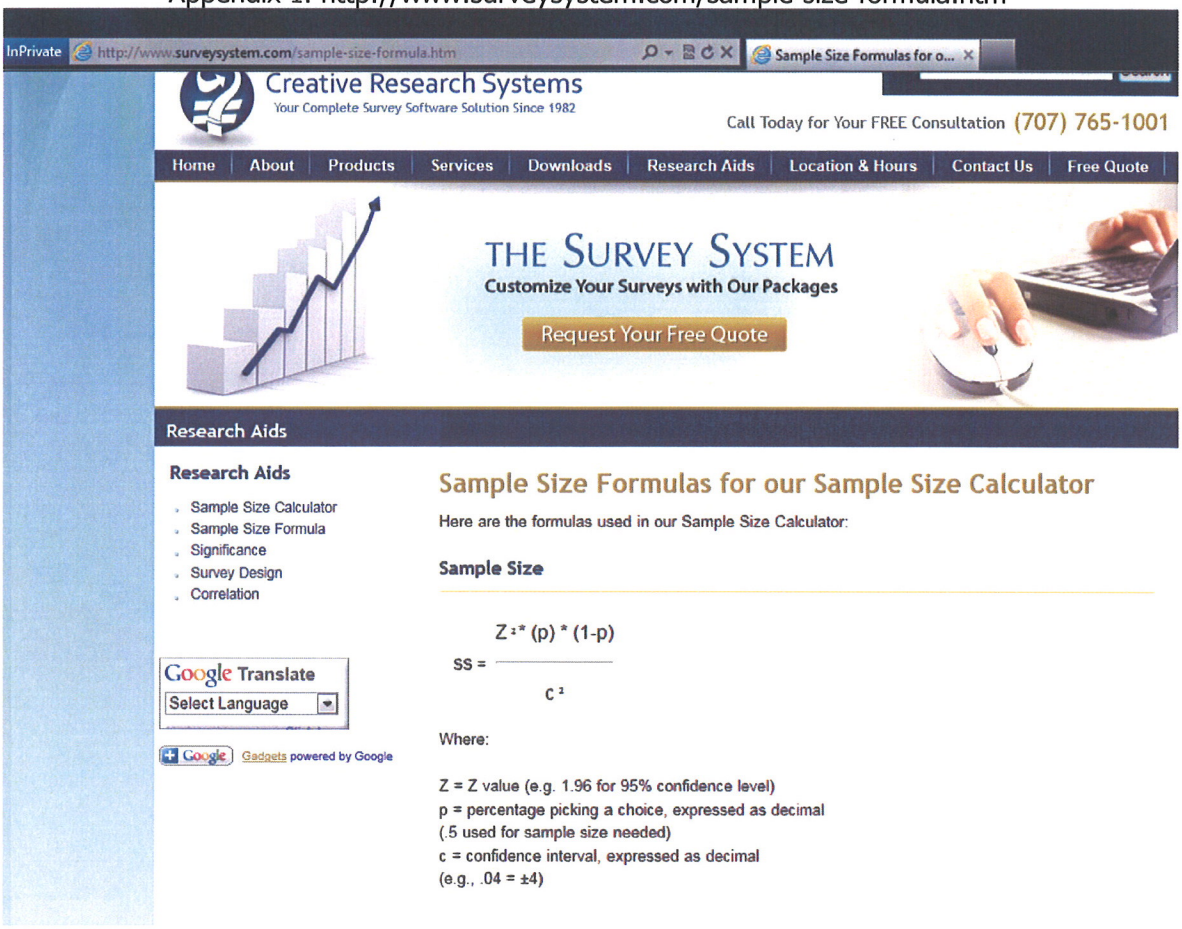
Bibliography[132]

1. Alan Agresti (1984). *Analysis of ordinal categorical data*.
2. Alan Agresti (1990). *Categorical data analysis*.
3. Amy Baker with Benjamin Charvat (2008). *Research methods in child welfare*.
4. Bruce Berg (2001). *Qualitative research methods for the social sciences*.
5. B. S. Everett (1977). *The analysis of contingency tables*.
6. William Cochran (1977). *Sampling techniques*.
7. D. R. Cox and E. J. Snell (1989). *Analysis of binary data*.
8. Norman Denzin and Yvonna Lincoln (1994). *Handbook of qualitative research*.
9. Jack Fraenkel, Norman Wallen, and Helen Hyun (2012). *How to design and evaluate research in education*.
10. Corrine Glesne (1999). *Becoming qualitative researchers*.
11. D. V. Gokhale and Solomon Kullback. (1978). *The information in contingency tables*.
12. Gary Henry (1990). *Practical sampling*.
13. David Hildebrand, James Laing, & Howard Rosenthal (1977). *Prediction analysis of cross classifications*.
14. Richard M. Jaeger (1984). *Sampling in education and the social sciences*.
15. P. O. Johnson and Munamatry S. Rao (1959). *Modern sampling methods: theory, experimentation, application*.
16. Leslie Kish (1965). *Survey sampling*.
17. David Lancy (1993). *Qualitative research in education: An introduction to the major traditions*.

[132] These are references that I examined while preparing both the June 7th and the current report, but did not cite directly.

18. John Lofland and Lyn H. Lofland (1995). *Analyzing social settings: A guide to qualitative observation and analysis*.
19. J. Scott Long (1997). *Regression models for categorical and limited dependent variables*.
20. Matthew Miles and A. Michael Huberman (1994). *Qualitative data analysis*, especially page 28.
21. Mildred Patten (2001). *Questionnaire research: A practical guide*.
22. J. C. W. Rayner and D. J. Best (2001). *A contingency table approach to nonparametric testing*.
23. Ravindra Singh & Naurang Singh Mangat.(1996). *Elements of survey sampling*.
24. Steven Thompson (1992). *Sampling*.
25. Graham Upton (1978). *The analysis of cross-tabulated data*.
26. Herbert Weisberg and Bruce Bowen (1977). *An introduction to survey research and data analysis*.

Appendix 1. http://www.surveysystem.com/sample-size-formula.htm



Appendix 2: www.random.org

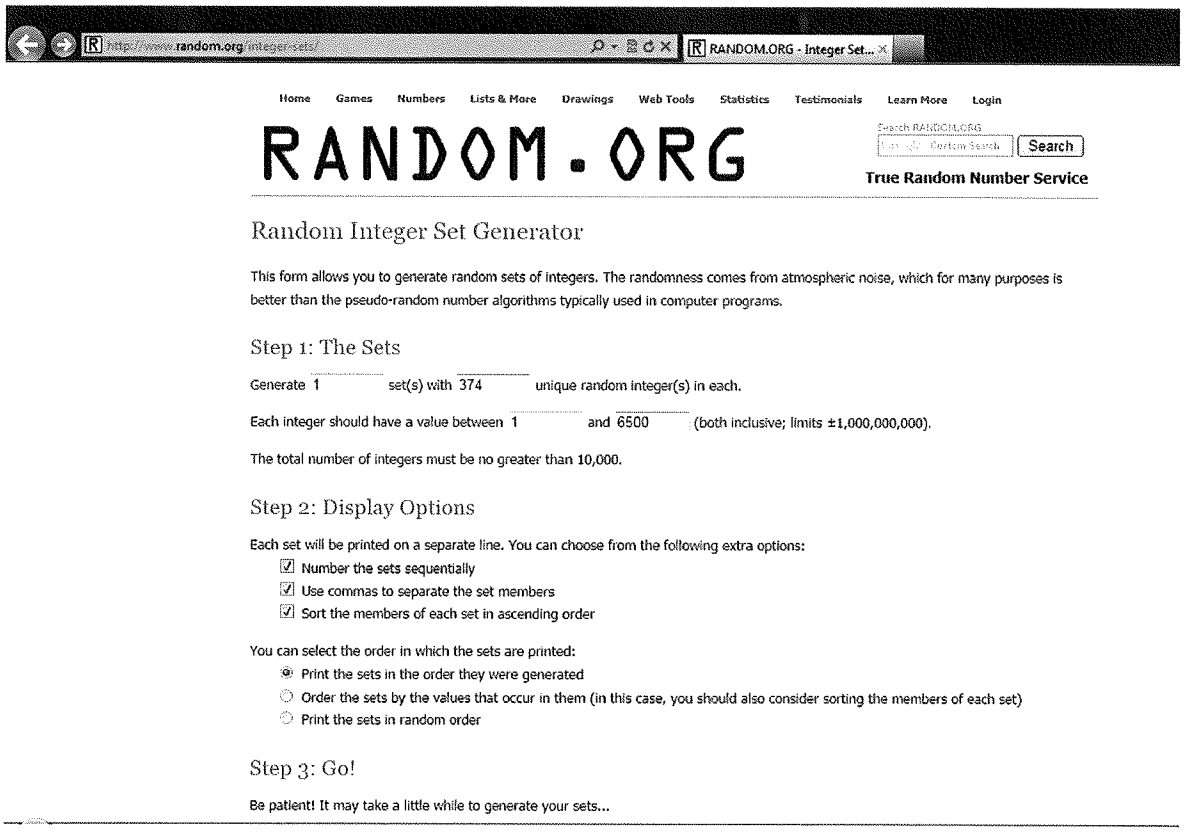
Radio

- BBC Radio 4 Front Row on 26 August 2009 in which Mark Lawson interviews writer Nicholson Baker who mentions how he has used RANDOM.ORG in his writing (MP3, 9m13s, 13 MB)
- Interview on Danish National Radio on 19 August 2003 (MP3, 11m57s, 5.7 MB)

Peer-Reviewed Citations

- Bernstein, Jay H. 'From the Ubiquitous to the Nonexistent: A Demographic Study of OCLC WorldCat,' *Library Resources & Technical Services* 50 (2): 79-90, Spring 2006.
- Biggar, Paul, Nash, Nicholas, Williams, Kevin, and Gregg, David. 2008. 'An experimental study of sorting and branch prediction.' *ACM Journal of Experimental Algorithmics.* 12 (Jun. 2008), 1-39.
- Fankhauser, Niklaus and Mäser, Pascal. 'Identification of GPI anchor attachment signals by a Kohonen self-organizing map.' *Bioinformatics,* Oxford University Press, 2005;21(9):1846-1852.
- Haahr, Mads. 'Random Numbers,' editor Neil J. Salkind, *Encyclopedia of Measurements and Statistics*, Sage Publications, 2006.
- Horvath, James W., Barnett, Gary E., Jimenez, Rafael E., Young, Donn C. and Povoski, Stephen P. 'Comparison of intraoperative frozen section analysis for sentinel lymph node biopsy during breast cancer surgery for invasive lobular carcinoma and invasive ductal carcinoma.' *World Journal of Surgical Oncology,* BioMed Central, 2009; 7:34.
- Huestis, Bradley J. 'Anatomy of a Random Court-Martial Panel,' *The Army Lawyer,* DPA 27-50-401, October 2006.
- Kellar, Ian & Abraham, Charles. 'Randomised controlled trial of a brief research-based intervention promoting fruit and vegetable consumption.' *British Journal of Health Psychology,* British Psychological Society, 2005;10(4):543-558.
- Mowbray, Miranda & Gollman, Dieter. 'Electing the Doge of Venice: analysis of a 13th Century protocol.' In *Proc. IEEE Computer Security Foundations Symposium.* (Venice, Italy July 6-8 2007), pp.295-308, ISBN 0-7695-2819-8.
- Salahu-Din, Sakinah. *Social Work Research: An Applied Approach,* Boston, MA: Allyn & Bacon, 2003.

Appendix 3. Two runs and results from www.random.org using n=374 and N=6500.



Home Games Numbers Lists & More Drawings Web Tools Statistics Testimonials Learn More Login

RANDOM.ORG

Search RANDOM.ORG Search

True Random Number Service

Random Integer Set Generator

This form allows you to generate random sets of integers. The randomness comes from atmospheric noise, which for many purposes is better than the pseudo-random number algorithms typically used in computer programs.

Step 1: The Sets

Generate 1 set(s) with 374 unique random integer(s) in each.

Each integer should have a value between 1 and 6500 (both inclusive; limits ±1,000,000,000).

The total number of integers must be no greater than 10,000.

Step 2: Display Options

Each set will be printed on a separate line. You can choose from the following extra options:

- ☑ Number the sets sequentially
- ☑ Use commas to separate the set members
- ☑ Sort the members of each set in ascending order

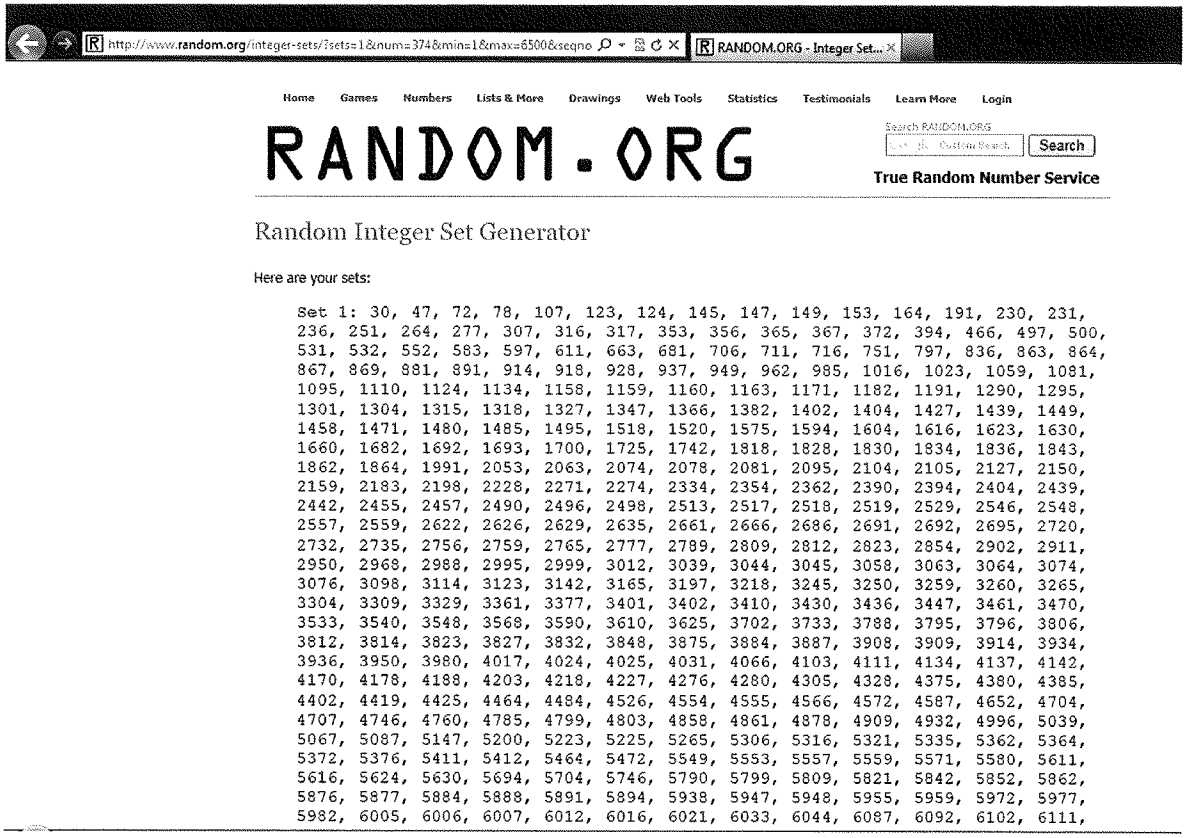
You can select the order in which the sets are printed:

- ◉ Print the sets in the order they were generated
- ○ Order the sets by the values that occur in them (in this case, you should also consider sorting the members of each set)
- ○ Print the sets in random order

Step 3: Go!

Be patient! It may take a little while to generate your sets...

Appendix 3a. First run.



http://www.random.org/integer-sets/?sets=1&num=374&min=1&max=6500&seqno

RANDOM.ORG - Integer Set...

Home Games Numbers Lists & More Drawings Web Tools Statistics Testimonials Learn More Login

RANDOM.ORG

Search RANDOM.ORG Search

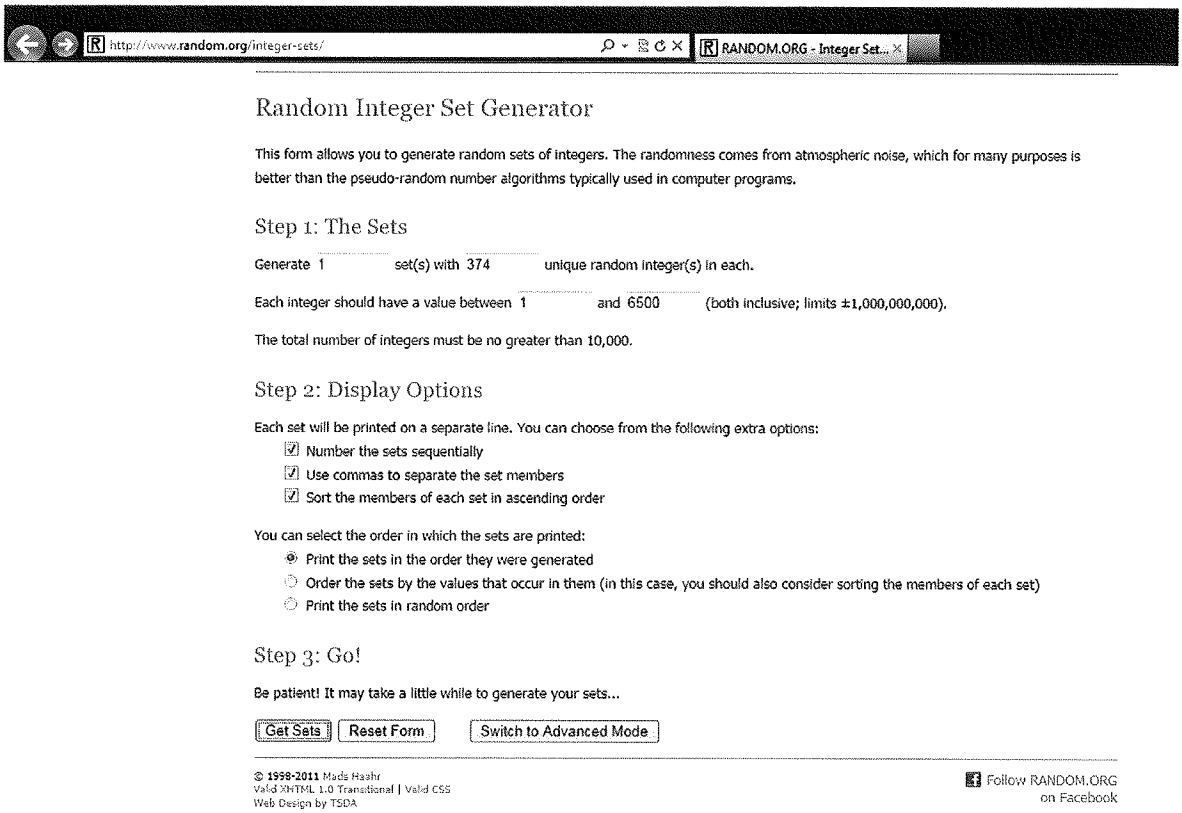
True Random Number Service

Random Integer Set Generator

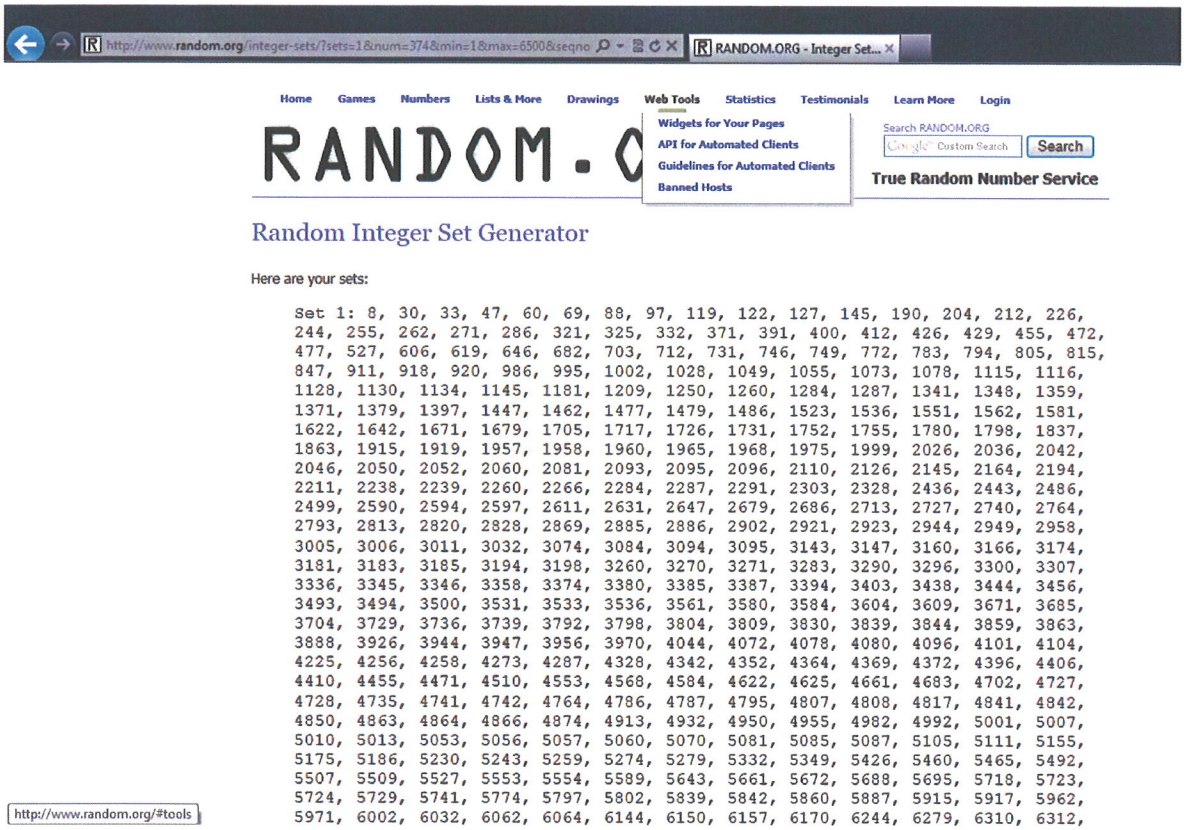
Here are your sets:

Set 1: 30, 47, 72, 78, 107, 123, 124, 145, 147, 149, 153, 164, 191, 230, 231,
236, 251, 264, 277, 307, 316, 317, 353, 356, 365, 367, 372, 394, 466, 497, 500,
531, 532, 552, 583, 597, 611, 663, 681, 706, 711, 716, 751, 797, 836, 863, 864,
867, 869, 881, 891, 914, 918, 928, 937, 949, 962, 985, 1016, 1023, 1059, 1081,
1095, 1110, 1124, 1134, 1158, 1159, 1160, 1163, 1171, 1182, 1191, 1290, 1295,
1301, 1304, 1315, 1318, 1327, 1347, 1366, 1382, 1402, 1404, 1427, 1439, 1449,
1458, 1471, 1480, 1485, 1495, 1518, 1520, 1575, 1594, 1604, 1616, 1623, 1630,
1660, 1682, 1692, 1693, 1700, 1725, 1742, 1818, 1828, 1830, 1834, 1836, 1843,
1862, 1864, 1991, 2053, 2063, 2074, 2078, 2081, 2095, 2104, 2105, 2127, 2150,
2159, 2183, 2198, 2228, 2271, 2274, 2334, 2354, 2362, 2390, 2394, 2404, 2439,
2442, 2455, 2457, 2490, 2496, 2498, 2513, 2517, 2518, 2519, 2529, 2546, 2548,
2557, 2559, 2622, 2626, 2629, 2635, 2661, 2666, 2686, 2691, 2692, 2695, 2720,
2732, 2735, 2756, 2759, 2765, 2777, 2789, 2809, 2812, 2823, 2854, 2902, 2911,
2950, 2968, 2988, 2995, 2999, 3012, 3039, 3044, 3045, 3058, 3063, 3064, 3074,
3076, 3098, 3114, 3123, 3142, 3165, 3197, 3218, 3245, 3250, 3259, 3260, 3265,
3304, 3309, 3329, 3361, 3377, 3401, 3402, 3410, 3430, 3436, 3447, 3461, 3470,
3533, 3540, 3548, 3568, 3590, 3610, 3625, 3702, 3733, 3788, 3795, 3796, 3806,
3812, 3814, 3823, 3827, 3832, 3848, 3875, 3884, 3887, 3908, 3909, 3914, 3934,
3936, 3950, 3980, 4017, 4024, 4025, 4031, 4066, 4103, 4111, 4134, 4137, 4142,
4170, 4178, 4188, 4203, 4218, 4227, 4276, 4280, 4305, 4328, 4375, 4380, 4385,
4402, 4419, 4425, 4464, 4484, 4526, 4554, 4555, 4566, 4572, 4587, 4652, 4704,
4707, 4746, 4760, 4785, 4799, 4803, 4858, 4861, 4878, 4909, 4932, 4996, 5039,
5067, 5087, 5147, 5200, 5223, 5225, 5265, 5306, 5316, 5321, 5335, 5362, 5364,
5372, 5376, 5411, 5412, 5464, 5472, 5549, 5553, 5557, 5559, 5571, 5580, 5611,
5616, 5624, 5630, 5694, 5704, 5746, 5790, 5799, 5809, 5821, 5842, 5852, 5862,
5876, 5877, 5884, 5888, 5891, 5894, 5938, 5947, 5948, 5955, 5959, 5972, 5977,
5982, 6005, 6006, 6007, 6012, 6016, 6021, 6033, 6044, 6087, 6092, 6102, 6111,

Appendix 3b. First run results. (*Note*: print screen set at maximum, but length not sufficient to reproduce the entire sequence.)

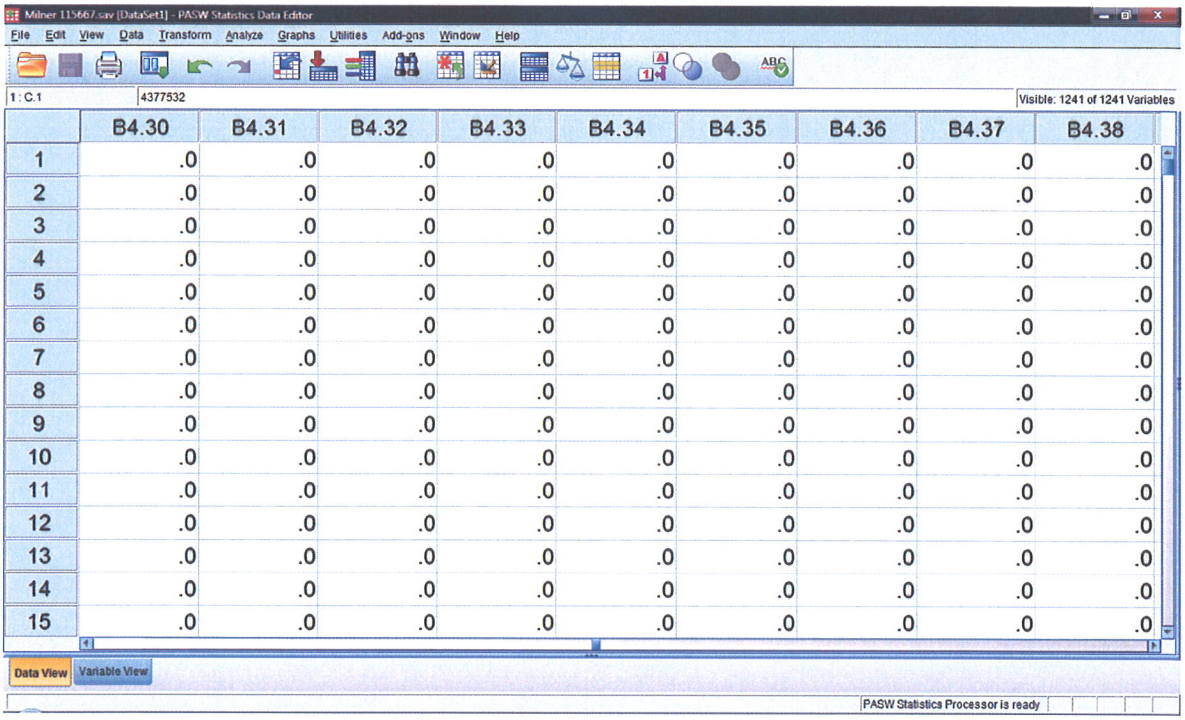


Appendix 3c. Second run.



Appendix 3d. Second run results. (***Note***: print screen set at maximum, but length not sufficient to reproduce the entire sequence.)

Appendix 4.
SPSS Input File Example of Not applicable marked as Zeros For Items B4.30-B4.38



	B4.30	B4.31	B4.32	B4.33	B4.34	B4.35	B4.36	B4.37	B4.38
1	.0	.0	.0	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0

2. "Report on the KIDS System: Review and Analysis by Zoran Obradovic dated March 15, 2011"

I have read Dr. Zoran Obradovic's report and deposition.[133] The main issue raised by this Plaintiffs' expert appears to be his opinion of the electronic database and its query/reporting system for a large, complex agency didn't fit nicely into what he considered to be a classic textbook example. Whatever his theoretical concerns might have been with the electronic database system, he certainly did not take into consideration OAC 340:75-1-26 which requires child welfare services to also be maintained as a paper case record:[134]

> A case record is not a single file folder, nor is it the production of the same accomplished by simply pushing the button on a computer keyboard. An individual child's case record is prescribed by OAC 340:75-1-26, which requires that the delivery of services by the child welfare division of OKDHS be maintained both in the electronic KIDS system and a paper case record.[135]

His report did not address how this deliberate redundancy in records might mitigate any of his concerns.

Most importantly, I did not find a single example cited by Dr. Obradovic of a limitation of the OKDHS database system that was shown to be the causal element "harmful to the children," such as, for example, the child was given the wrong medication, fed a documented allergen, was hospitalized, or died. There was no research methodology conducted, data collected, or statistical analyses presented that documented the prevalence of such an allegation of harm. Moreover, Dr. Obradovic could not identify a single case of harm:[136]

> 12-17 Q. That's not my questions though. Do you have a single report identified that relates to a child that was the subject of any harm in the state of Oklahoma as part of your analysis?
> 18 A. No, because I have not analyzed that sort of data.

Repeatedly in his deposition, Dr. Obradovic was unresponsive to the direct question of whether there was any aspect of the OKDHS database system, its query system, and its reporting system was linked to any actual instance of harm:[137]

> 11-17 Q. Can you give me a single example of an event or an incident wherein a child was put in harm's way because there was an ineffective comment written by any of the personnel at Oklahoma Department of Human Services?
> ...

---

[133] I only received a draft deposition for Dr. Zoran Obradovic on June 6, 2011. Due to Sabbath and Jewish *Shavuot* (holyday) observances that only gave me four business days prior to when this report was submitted.

[134] Document 379 filed in USDC ND/OK on 05/03/2010, Case 4:08-cv-00074-GKF-FHM: Page 3: Thus, an individual case record/files consists of two types of information - the KIDS electronic case record data and paper (hard copy) case records/file.

[135] Report, page 3, footnote 4

[136] Deposition, page 84

[137] Deposition, page 211

22-23 A. So my answer is that my report is not about single kid.

Likelihood

Dr. Obradovic alleged, "There is a significant likelihood" that as a result there is "putting in harm's way the very children they are responsible for serving." [138] However, there was no research methodology, no data collection, and no statistical analysis of any likelihood statistic, much less a "significant likelihood" statistic computed by Dr. Obradovic to support his allegation. Dr. Obradovic testified in deposition: "Sir this was not a statistical analysis report."[139]

Risk

Risk was asserted five times in Dr. Obradovic's report.[140] However, Dr. Obradovic designed no study, collected no data, and conducted no statistical risk analyses to support his claim of the potential for risk:[141]

> 19-23 Q. All right. Did you undertake any scientifically valid survey or analysis to assess or measure the degree of risk you claim might exist?
> 24 A. The risk is huge. Again,
> Page 273
> 1 A. we do not need statistics for that.
>
> 2-5 Q. So your answer is you did not undertake any scientifically valid survey or analysis to assess or measure the degree of risk?
> 6-7 A. There was absolutely no need for obvious (check.)

Again, Dr. Obradovic testified in deposition: "Sir this was not a statistical analysis report."[142]

Failure to Identify Any Actual Errors

Dr. Obradovic was similarly unresponsive in his deposition as to whether any specific WebFOCUS exists that contains errors.[143] When asked repeatedly to cite a specific example to support his allegation, he again referred to a "likelood of some errors"[144], a "high probability,[145] but characteristically of his lack of support for allegations:[146]

> 9-12 Q. But you've not -- you can't tell me a single web Access report that, in fact, contains errors at all not a single one, can you?

---

[138] Report page 2; Page 235-238
[139] Deposition, page 89:19-20; See also deposition, page 91:11-17; 155:10-11.
[140] Report Page 3 regarding potential for unreliable and outdated child welfare reports, Page 3 regarding quality control and potential inaccurate and unreliable child welfare reports, Page 9 regarding potential for unreliable data in KIDS due to control systems, Page 16 regarding change management protocols and potential for errors in child welfare reports, and Page 17 regarding quality control and potential for inaccurate child welfare report.
[141] Deposition, Page 272, Page 342:2-10
[142] Ibid, page 89:19-20; See also 91:11-17; 155:10-11.
[143] Ibid, page 235
[144] Ibid, page 235:9
[145] Ibid, page 235:20
[146] Ibid, page 236

13-15 A. There is no reason for actually go for one example when you have such a big problem.

Finally, after repeated questioning, Dr. Obradovic responded to the proposition that he did not find a single WebFOCUS report to be unreliable or to contain errors that had led to putting a child in harm's way: "yeah that's correct,"[147] and admitted "I never said that I have."[148] The same conclusion was eventually reached with regard to the KIDS system,[149] and current OKDHS testing protocols.[150]

Sampling

Dr. Obradovic was asked in his deposition about the methodology he used to examine MS Access queries identified in an internal problem report.[151] He admitted he cherry-picked them:

22-24 Q. Did you analyze the samples of bad queries that were identified by Mr. Gelona in his problem report?
Page 96
1 A. Yes.

2 Q. And those are MS Access queries correct?
4 A. That's correct.

5-6 Q. Did you analyze all of them?
7 A. Not all.

8-13 Q. Do you know which ones you did analyze and those that you didn't analyze?
11 A. I sampled from there so I can go back and check exactly but there's many of them so I just wanted to develop a feeling for the system.

Page 100
10-14 Q. The samples that you analyzed were they obtained or identified in a manner consistent with a scientifically valid random sampling?
15-18 A. Again, this is not a statistics test right here, so I was actually going in a very targeted way.

Because of the lack of any research design and data linking any causal elements of the OKDHS database system to any harmful outcome, I urge the court to consider his opinions on this matter to be speculation.

---

[147] Page 241:8; Similarly Page 148:17-24, Page 162-163, Page 172:16, and Page 274:5-24.
[148] Deposition page 172:3
[149] Ibid, page 277:11-19
[150] Ibid, page 341:18-342:1
[151] Ibid, page 95; 101:7-13

Conclusion

The reports by Drs. Milner and Smollar, and Dr. Obradovic, do not conform to the scientific methodology necessary to support their allegations, findings, opinions, and conclusions. Drs. Milner and Smollar's shell game of who was responsible for what, each relying on the other and unnamed or unknown experts, is also troublesome because it lacks transparency to the Court and prevents replication. Their report is scientifically naïve, lacks rigor, is uninformed in terms of research design and data analysis, and this left Drs. Milner and Smoller little choice but to speculate on matters raised by Plaintiffs. Dr. Obradovic's deposition revealed his willingness to support Plaintiff's allegations of harm, risk of harm, and likelihood of harm while admitting it was neither his mission, nor did he find a single datum, to support those allegations. Hence, I urge the Court to discount their opinions accordingly.

Shlomo Sawilowsky

Shlomo S. Sawilowsky, Ph. D.

WAYNE STATE UNIVERSITY
PROFESSIONAL RECORD

Name: Shlomo S. Sawilowsky

Date Prepared: 27 May 2011

Office Address: #371 EDUC
Wayne State University
Detroit, MI 48202
Office: (313) 577-5244
Fax: (313) 577-5235 (8:00 a. m - 6:00 p. m. EST)

Mailing Address: P. O. Box 48023
Oak Park, MI 48237

E-Mail: shlomo@wayne.edu

Department/College: Educational Evaluation and Research, Theoretical and Behavioral Foundations, College of Education

Present Rank and Date of Rank: Professor (1997)

WSU Appointment History

Year Appointed, Rank: 1987, Assistant Professor
Year Awarded Tenure: 1993
Year Promoted to Associate Professor: 1992
Year Promoted to Full Professor: 1997
Program Coordinator (Department Chair), Educational Evaluation and Research: 1994 – 2009.
Interim Assistant Dean, Division of Administrative and Organizational Studies, and Division of Theoretical and Behavior Foundations: January, 2008 – August, 2008.
Assistant Dean, Division of Administrative and Organizational Studies, and Division of Theoretical and Behavior Foundations: January, 2009 – August, 2010.

Place of Birth: Augusta, Georgia **Citizen of:** USA

Education

June 1981 - August 1985
University of South Florida, College of Education.

Ph.D. in Curriculum and Instruction with program specialization in Educational Statistics, Measurement, Research, and Evaluation.

Cognate in Business Management, College of Business Administration, U.S.F.
Grade Point Average: Major: 3.7 Cognate: 3.8 (4.0 scale)

January 1980 - June 1981
University of South Florida, College of Education

Master's in Guidance and Counseling Education.
Electives in Measurement and Evaluation.
Grade Point Average: Major: 3.8 Electives: 4.0 (4.0 scale)

January 1975 - June 1979
Rabbinical College of America, 226 Sussex Avenue, Morristown, New Jersey. The Rabbinical College of America is accredited by the New Jersey State Board of Higher Education and the professional agency, AARTS, the Association of Advanced Rabbinical and Talmudical Schools.

Bachelor of Religious Studies.
Major in Talmudical Studies.
Minor in Religious Education.
Grade Point Average: Major: 3.5 Minor: 3.7 (4.0 scale)

Faculty Appointments At Other Institutions
August 1985 - August 1987
a. University of South Florida, College of Education, Institute for Instructional Research and Practice.

Visiting Assistant Professor and Institute Associate

Duties: Test development, mainframe and microcomputer applications in education, data analysis, survey research, linear equating, item bank development, statistical expertise.

b. University of South Florida, College of Education, Department of Measurement, Research, and Evaluation.

Adjunct Assistant Professor

Duties: Taught Undergraduate and Master's level measurement and evaluation for teachers; Master's level research in education.

August 1983 - August 1985
U.S.F., College of Education, Department of Measurement, Research, and Evaluation.

Adjunct Instructor

Duties: Taught Ph.D. level computer statistics (SPSS and SPSSx) and Undergraduate level measurement and evaluation for teachers.

Professional Society Memberships (Current/Lapsed)
1. American Educational Research Association (AERA)
    a. Division D Measurement and Evaluation
    b. SIG/ Educational Statisticians
2. American Mathematical Association (AMA)
3. American Psychological Association (APA)
    a. Division 5, Measurement & Evaluation
4. American Psychological Society (APS)
5. American Statistical Association (ASA)
6. Mid-West Educational Research Association (MWERA)

7. National Council on Measurement In Education (NCME)
8. Psychometric Society
9. Royal Statistical Society (Fellow)

Honors/Awards:
1. 2004 American Educational Research Association Publications: Outstanding Professional Service Award
2. 2000-2002 Wayne State University: Distinguished Faculty Fellow
3. 1999 Wayne State University: Faculty Mentor Award
4. 1998 Wayne State University: Outstanding Graduate Mentor Award
5. 1997 Wayne State University College of Education: Award For Excellence In Teaching
6. 1995 Wayne State University President's Award: For Excellence In Teaching
7. 1995 Wayne State University: Career Development Award
8. 1987 Eleventh Annual Distinguished Papers, State and Regional Associations, American Educational Research Association: "The Rank Transform"
9. 1986 Distinguished Paper Award, Florida Educational Research Association: "Properties of the Rank Transformation Statistic in Factorial ANOVA"
10. 1981 Elected member of Phi Kappa Phi National Honor Society

Biographical Citations
1. 2004 – 2011. *American Men & Women of Science. A biographical directory of today's leaders in physical, biological and related sciences*. 22nd – 29th editions. Thomson Gale.
2. 1990 *Who's Who in American Education*, Vol. II. National Reference Institute, 608.

I. Teaching
A. Years At Wayne State: August, 1987 – January, 2008; August 2010 – present.

B. Years At Other Colleges/Universities:
University of South Florida: August, 1983 - May, 1987.

C. Courses Taught At Wayne State
2. Graduate
1. CED 8070, Advanced Seminar: Counseling Research (3 hours)
2. EER 7610, Evaluation and Measurement (2-3 hours)
3. EER 7620, Practicum in Evaluation (1-6 hours)
4. EER 7630, Fundamentals of Statistics (3 hours)
5. EER 7640, Fundamentals of Quantitative Research (3 hours)
6. EER 7650, Computer Use in Research (3 hours)
7. EER 7660, Advanced Statistics Lab (1 hour)
8. EER 7900, Fundamentals of Qualitative Research (3 hours)
9. EER 8700, Advanced Qualitative Evaluation: Theory & Practice (3 hours)
10. EER 8760, Advanced Measurement I: Classical Measurement Theory (3 hours)
11. EER 8800, Variance and Covariance Analysis (4 hours)
12. EER 8820, Multivariate Analysis (4 hours)
13. EER 8860, Nonparametric, Permutation, Exact and Robust Methods (4 hours)

14. EER 8880, Monte Carlo Methods (1 hour)
15. EER 8992, Research and Experimental Design (3-4 hours)

D. Dissertations/Theses Directed

Note: Entries *without* date/title are post qualifying examinations and are working on their dissertations. Entries with titles and dates in parenthesis but *without* page numbers are expected to be completed in 2011/12.

Ph. D./Ed. D. (Major Advisor)

1. Willie White (Ed. D.)
2. Zora Cvetkovski-Injic (Ph. D.)
3. Jamie Gleason (Ph. D.)
4. Harry D. Coakley (Ph. D.)
5. Elizabeth Moen (Ph. D.)
6. Carey Vigor (Ph. D).
7. Carrie J. Sapp. (Ed. D.)
8. Savierpierre Maggio. (Ph. D.)
9. Gary Francy. (Ph. D.)
10. Alice Abrams-Hunter. (Ed. D.)
11. Kundisai Ndhella. (Ph. D.)
12. Tanina Foster (Ph. D.)
13. Heatherlun Uphold (Ph. D.)
14. Rasha Elhage (Ph. D.) "Conceptualizing a special education research agency in Lebanon. (2012).
15. Holly Child. (Ph. D.) "Construct validity of the *Measures of Criminal Attitudes and Associates* scale." (2012).
16. Tammy Grace (Ph. D.). "Missing values imputation in parametric and nonparametric tests." (2011).
17. Daryle Alan Olson (Ph. D.) "Tests for change in location and scale." (2011).
18. Norman Haidus. "Comparative power of the Kornbrot rank-difference and Wilcoxon signed-ranks test." (2011).
19. Linda Ellington. "Effects of non-normal distributions on tests of equivalence". (2011).
20. Marvin Gibbs (Ph. D.). "MiBLSi program evaluation of participatory elementary schools from 2003-2009." (2011).
21. Jason Capobianco (Ph. D). "Robustness of the Achievable Benchmark of Care index using various measures of central tendency." (2011).
22. Julie Smith (Ph. D.). "Reliability generalization: *Lapsus linguae*." (2011).
23. Joe Smith (Ed. D.) "employee subgroup perceptions of the organization culture of the John D. Dingell Veterans Administration Medical Center". (2011).
24. Jason Parrott. "The effect of nonrandom selection of clusters in a two stage cluster design." (2011).
25. Michael Lance (Ph. D.). "Type I and II robustness of the symmetrically-Winsorized t Test using approximate vs. Monte Carlo derived critical values." 67 pp. 2010.
26. Stephanie Wren (Ed. D). "Type II robustness of h_0: $\rho=0$ for non-normal distributions," 99 pp. 2010.

27. Piper A. Farrell-Singleton. (Ph. D.). "Critical values for the two independent samples Winsorized t test," 58 pp., 2010.
28. Frances Dolly (Ed. D.). "The effectiveness of implementing computer assistive technology in a high school special education classroom," 148 pp., 2010.
29. Bulent Ozkan (Ph. D.) "Comparison of university researchers; and statistical consultants' diagnoses and applications on research problems," 63 pp., 2008.
30. Roberta Foust. (Ed. D.) "Learning strategies, motivation, and self-reported academic outcomes of students enrolled in web-based coursework," 116 pp., 2008.
31. Gregory Karapetian (Ph. D.). "Heart rate variability as a non-invasive biomarker of sympatho-vagal interaction and a determinant of metabolic threshold," 141 pp, 2008.
32. Shira Solomon. (Ph. D.) "Comparison of four methods for creating Z scores," 123 pp., 2008.
33. Andree' Sampson. (Ed. D.) "A survey of Midwestern education graduate students' coping strategies and subsequent development of a three factor stress scale," 109 pp., 2007.
34. Tana Jane Bridge. (Ph. D.) "Deconstructing the comparative power of the independent samples t test vs. the Wilcoxon Mann-Whitney test for shift in location," 77 pp., 2007.
35. Lori Shingledeker Roy. (Ph. D.) "Algebra readiness assessment," 78 pp., 2007.
36. Reza Ziaee. (Ph. D.). "Logistic regression versus Mantel-Haenszel differential item functioning (DIF) to predict length of stay for pneumonia, and acute myocardio infraction," 2007.
37. Candice Pickens. (Ed. D.) "Predicting critical thinking via concept mapping," 79 pp., 2007.
38. Dave Fluharty. (Ph. D.) "Simulation-based specifications for evaluating high stakes educational test results from a Bayesian epistemological framework," 208 pp., 2007.
39. John Cuzzocrea. (Ph. D.) "Robustness to internal correlation structure of Sawilowsky's I test for trend in construct validity," 59 pp., 2007.
40. Kevin Duwan Lawson. (Ph. D.) "Statistical inference for a linear function of medians: a comparison of the Maritz-Jarrett and Price-Bonett estimators," 117 pp., 2006.
41. Michele Weber. (Ph. D.) "Robustness and power of the t, permutation t, and Wilcoxon tests," 74 pp., 2006.
42. Andrew J. Tierman. (Ph. D.) "Testing for exponentiality using a two-moment estimator and a median-centered distance statistic," 319 pp., 2006.
43. Kalvin Holt. (Ed. D.) "Norming the *Self Determination Student Scale* with an incarcerated delinquent population," 62 pp., 2006.
44. Patricia A. Pelavin. (Ph. D.) "The management of nonnormal variables in structural equation modeling," 212 pp., 2006.
45. Saydee J. Mends-cole. (Ed. D.) "Coverage and interval length of Welch's and Yuen's procedures for shift in location and change in scale for (un)equal sample sizes," 129 pp., 2006.
46. Amittai Benami. (Ed. D.) "Longitudinal analysis of satisfaction, stress, and retention of teachers," 237 pp., 2006.
47. Boris Shulkin. (Ph. D.). "Estimating a population median with a small sample," 90 pp., 2006.
48. Jack Cullen Hill, Jr. (Ph. D.). "The effects of pseudorandom number generator and initial seed selection on Monte Carlo simulations," 223 pp., 2005.

49. Stephanie Krol-Jersevic (Ed. D.). "Measuring oral communication apprehension in children," 89 pp., 2004.
50. Karen Lee (Ph. D.). "Parametric and nonparametric IRT models for assessing differential item functioning," 113 pp., 2003.
51. Bruce R. Fay (Ph. D.). "A Monte Carlo computer study of the power properties of six distribution-free and/or nonparametric statistical tests under various methods of resolving tied ranks when applied to normal and nonnormal data distributions." 528 pp, 2003.
52. Jennifer M. Bunner (Ph. D.). "Forming a bracketed interval around the trimmed mean: Alternatives to S_w," 112 pp., 2003.
53. Rimma Novojenova (Ed. D.). "Measurement of teacher's personalization in the classroom environment," 152 pp., 2002.
54. Kathy R. Peterson (Ph. D.). "A study of six modifications of the ART (aligned rank transform) used to test for interaction," 361 pp., 2001.
55. Scott Compton (Ph. D.). "Type I error and power properties of seven two-sample tests when treatment affects location and scale," 276 pp., 2001.
56. Karen Crawforth (Ph. D.). "Measuring the inter-rater reliability of a data collection instrument developed to evaluate anesthetic outcomes, 114 pp., 2001.
57. Jim Gullen (Ph. D). "Goodness of fit indices as a one factor structural equation model," 61 pp., 2000.
58. Frederick F. Strale, Jr. (Ph. D.). "Strategic learning theory utility: A criterion related validity study of the LASSI using Pearson correlations and structural equation models, 146 pp., 2000.
59. Juanita M. Lyons (Ph. D.) "Methodology for the determination of the reliability of database derived data," 115 pp., 2000.
60. Joe Musial. (Ph. D.) "Comparing exact tests and asymptotic tests with colorectal cancer variables within the National Health and Nutrition Examination Survey III," 189 pp., 1999.
61. Gail Fahoome. (Ph. D.). "A Monte Carlo study of twenty-one nonparametric statistics with normal and nonnormal data," 519 pp., 1999
62. Michael Wolf-Branigin (Ph. D.) "Point pattern analysis in measuring physical inclusion of people with developmental disabilities," 182 pp., 1999
63. Cynthia Creighton (Ph. D.) "Critical thinking skills and learning styles of first-year students in weekend occupational therapy programs," 80 pp, 1999.
64. William Cade. (Ph. D.), "Sampling procedures and Type I error rates (for nonnormal populations)," 81 pp., 1998.
65. Anil N. F. Aranha. (Ph. D.), "Modeling self-determination among the elderly: A psychometric study of health care decision-making," 102 pp., 1998
66. Michael J. Nanna. (Ph. D.), "Analysis of Likert scale data in disability and medical rehabilitation research," 220 pp., 1997
67. Todd Headrick. (Ph. D.), "Type I error and power of the rank transform analysis of covariance (ANCOVA) in a 3x4 factorial layout," 355 pp., 1997
68. Thilak Gunasekera (Ph. D.), "Effects of pretest sensitization associated with cooperative learning strategies on the achievement level of adult mathematics students," 97 pp., 1997
69. Margaret P. Posch. (Ph. D.), "Comparative properties of nonparametric statistics for analyzing the 2xc layout for ordinal categorical data," 78 pp., 1996

70. Patrick D. Bridge (Ph. D.), "The comparative power of the independent-samples t-test and Wilcoxon rank sum test in nonnormal distributions of real data sets in education and psychology," 113 pp., 1996
71. Uju P. Eke (Ph. D.), "A construct validation of *Self-Determination* instrument: Using adult substance abuse consumers in residential settings," 79 pp., 1996
72. Dennis J. Mullan (Ph. D.), "An investigation of a residential customer satisfaction model at an electric utility," 102 pp., 1995
73. Deborah L. Kelley (Ph. D.), "The comparative power of several nonparametric alternatives to the analysis of variance in a 2x2x2 layout," 214 pp., 1994
74. Sharonlyn Morgan-Harrison (Ph. D.), "Some construct validation evidence for two new measures of self-determination," 89 pp., 1994
75. Joyce Washington (Ed. D.), "Health education and measuring the effects of minority student self-concept as it relates to school performance," 104 pp., 1993

Note: Entries with dates in parenthesis and *without* title/ page numbers have an approved thesis/project topic and are working on their dissertations.

Ph. D. Cognate Advisor

76. Heidi Kattula. (Ph. D.). (2011).
77. Mary Pratt Cooney. (Ph. D.). "A comparison study of process drama and actor training". 124 pp., 1999.

Ph. D. 2nd Advisor: 12 (#78 – #90)

Ph. D. Committee Member: 46 (#91 – #137)

ABD (Time Expired)

138. Wendy Nevins (Ed. D.) 1992.
139. Franklyn Harrell. (Ed. D.) 2007.
140. Sia Robinson. (Ed. D.) 2008.
141. P. Monet Conner. (Ed. D.) 2008.
142. LaTonya Wallace-Hardiman (Ph. D.) 2011.

Note: Entries with dates in parenthesis and *without* title/ page numbers have an approved thesis/project topic and are working on their theses.

M. Ed. Theses/Projects Directed

1. Kenyatta A. Sabir. (2011)
2. Jack Sawilowsky (2nd advisor) (2011).
3. Tiffany Davis. (2011)
4. Brittany Maxey. (2011)
5. Esther Maples. (M. Ed.). "Effectiveness of success for all education program in low income states," 51 pp., 2010.
6. Maurice Kavanaugh. (M. Ed.). "A reliability study of multiple choice instruments used to assess dolch word acquisition and reading interest in grades 3 and 4 school children," 58 pp, 2010.
7. Tanisha Stacey Barrington. (M. Ed.) "The effects of translation on test scores by English-language and French-language students," 29 pp., 2008

8. Emily Bennett McEvoy. (M. Ed.) "Psychometric properties of a school improvement entrance and exit survey," 35 pp., 2007.
9. Elizabeth Perkin Moen. (M. Ed.) "Wayne State University first-year freshmen retention Fall 2006 to Fall 2007: Using logistic regression to predict retention probabilities," 41 pp. 2008.
10. Guifang Ding. (M. Ed.) "Reliability and validity of a survey for designing a global positioning system," 37 pp. 2007.
11. Diane Dolinshek. (M. Ed.) "An instrument to assess physical therapists' knowledge and attitudes regarding phantom limb pain," 55 pp. 2006.
12. Carla Howe. (M. Ed.) "Reliability and validity of test writing scores of Plymouth-Canton's Bridge program," 35 pp. 2006.
13. Lawrence Schwartz, MD. (M. Ed.) "Simulation vs. traditional methods in assessing cardiac training," 50 pp. 2006.
14. Tanina S. Foster. (M. Ed.). "Information seeking behavior and source preferences: A comparison to hints," 51 pp., 2004.
15. Jennifer Curtis. (M. Ed.). "A comparative analysis of Walled Lake Consolidated Schools' mathematics assessment program and the state of Michigan's educational assessment program," 81 pp., 2004.
16. Scott Millis, Ph. D. (M. Ed.) Master's project. 2003.
17. Robert Brickner. (M. Ed.). Master's project. 2003.
18. Simone Perry. (M. Ed.), "Parental involvement in primary inner-city school settings," 54 pp., 2002.
19. Lena Tzortinis. (M. Ed.). Master's project. 2002.
20. Maurice Lester. (M. Ed.), "Standard treatment plus relapse prevention: A summative evaluation," 58 pp., 2001
21. Donna Kueber. (M. Ed.) Master's project. 2001.
22. Chantelle Morrison (M. Ed.), "The quantitative value of summer individual education plans (IEPS)," 38 pp., 2000
23. Gail Fahoome (M. Ed.), "Predicting mathematics MAT7 scores with the MEAP for Detroit Public Schools For 1994-1995 and 1996-1997," 39 pp., 1998
24. Donna M. Johnson (M. Ed.), "A meta-analytic review of differences between African-Americans and European-Americans on measures of intelligence," 97 pp., 1997
25. Scott Compton (M. Ed.), "A comparison of student achievement levels preceding animal dissection vs. computer simulated animal dissection laboratory techniques," 63 pp., 1996
26. Kevin M. Lane (M. Ed.), "The viability of the static push-up as a measure of upper body strength and endurance," 40 pp., 1994
27. Letetia D. Kemp (M. Ed.), "Newborn assessment from birth to six weeks," 37 pp., 1994
28. Gregg Milligan. (M. Ed.). Master's project. 1992.
29. Iain K. Todd (M. Ed.), "A review of effect size in acquired immune deficiency syndrome research designs," 31 pp., 1992.

Wayne State University Graduate School Graduate Exhibition Presentations

2010

1. David Felder. How does modifying a mathematics curriculum impact students' success on standardized test preparation?
2. Valerie Felder. Effectively assessing and measuring students' reading progress.

Monographs Published Based on Student Theses/Dissertations

1. Schwartz, L., & Sawilowsky, S. (2010). Randomized comparison trial of CBL v HPS in medical education: A study of the effectiveness of new technology in medical education. Germany: VDM Verlag. ISBN: 9783639042788.

E. Curriculum Development

1996 - 1998

1. EER 7660 Advanced Statistics Lab (1 hour)
2. EER 7900 Fundamentals of Qualitative Research (3 hours)
3. EER 8700 Advanced Qualitative Evaluation: Theory & Practice (3 hours)
4. EER 8760 Advanced Measurement I: Classical Measurement
5. EER 8770 Advanced Measurement II: Modern Measurement
6. EER 8860 Nonparametric, Permutation, Exact, & Robust Methods
7. EER 8880 Monte Carlo Methods
8. EER 8900 Qualitative Design for School Research

Guest Lectures

1. Sawilowsky, S. (2011). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
2. Sawilowsky, S. (2011). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
3. Sawilowsky, S. (2010). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
4. Sawilowsky, S. (2010). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
5. Sawilowsky, S. (2010). *Kabbalah: Introduction to theoretical Jewish mysticism*. Oakland University, Rochester, MI.
6. Sawilowsky, S. (2010). *Chassidus: Introduction to Jewish philosophy*. Oakland University, Rochester, MI.
7. Sawilowsky, S. (2010). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
8. Sawilowsky, S. (20010). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
9. Sawilowsky, S. (2009). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
10. Sawilowsky, S. (2009). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.

11. Sawilowsky, S. (2009). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
12. Sawilowsky, S. (2009). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
13. Sawilowsky, S. (2008). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
14. Sawilowsky, S. (2008). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
15. Sawilowsky, S. (2008). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
16. Sawilowsky, S. (2008). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
17. Sawilowsky, S. (2007). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
18. Sawilowsky, S. (2007). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
19. Sawilowsky, S. (2007). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
20. Sawilowsky, S. (2007). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
21. Sawilowsky, S. (2006). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
22. Sawilowsky, S. (2006). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
23. Sawilowsky, S. (2006). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
24. Sawilowsky, S. (2006). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
25. Sawilowsky, S. (2005). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.

26. Sawilowsky, S. (2005). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
27. Sawilowsky, S. (2004). Test construction. Cleary College, Ann Arbor, MI.
28. Sawilowsky, S. (2004). *Test construction*: *Reliability*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
29. Sawilowsky, S. (2004). *Test construction*: *Validity*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
30. Sawilowsky, S. (2004). *Research Design*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
31. Sawilowsky, S. (2004). *Data Analysis*. Chief Residents, Administrative Leadership, Chief and Associate Program Directors, & Internal Medicine Residency, School of Medicine, Wayne State University.
32. Sawilowsky, S. (2003). Test construction. GTA Orientation, Office for Teaching and Learning, Wayne State University.
33. Sawilowsky, S. (2002). Test construction. College of Nursing, Wayne State University.
34. Sawilowsky S. (2002). Test construction. Faculty Development Workshop, Office For Teaching and Learning, Wayne State University.
35. Sawilowsky S. (2001). Test construction. Graduate Teaching Assistant Development Workshop, Graduate School, Wayne State University.
36. Sawilowsky, S. (2001). Test construction. Cleary College, Howell, MI.
37. Sawilowsky S. (2001). Test construction. Faculty Development Workshop, Office For Teaching and Learning, Wayne State University.
38. Sawilowsky S. (2001). Test construction. Faculty Development Workshop, Wayne County Schools, Detroit, MI.
39. Sawilowsky S. (2001). Test construction. Graduate Teaching Assistant Development Workshop, Graduate School, Wayne State University.
40. Sawilowsky, S. (2000). Test construction. College of Medicine, Wayne State University.
41. Sawilowsky S. (2000). Test construction. Faculty Development Workshop, Office For Teaching and Learning, Wayne State University.
42. Sawilowsky S. (2000). Test construction. Graduate Teaching Assistant Workshop, Graduate School, Wayne State University.
43. Sawilowsky S. (1999). Test construction. Faculty Development Workshop, Oakland County Schools, Oak Park, Michigan.
44. Sawilowsky S. (1999). Test construction. Faculty Development Workshop, Office For Teaching and Learning, Wayne State University.
45. Sawilowsky S. (1999). Test construction. Graduate Teaching Assistant Workshop, Graduate School, Wayne State University.
46. Sawilowsky S. (1998). Test construction. Graduate Teaching Assistant Workshop, Graduate School, Wayne State University.
47. Sawilowsky S. (1997). Test construction. Graduate Teaching Assistant Workshop, Graduate School, Wayne State University.

48. Sawilowsky, S. (Winter, 1989). Nonparametric tests of interaction: Theory. Research Dialogue Series, College of Education, Wayne State University.
49. Sawilowsky, S. (Fall, 1989). Nonparametric tests of interaction: Practice. Research Dialogue Series, College of Education, Wayne State University.

II: Research B. Grants

Competitive

#	PI/Co-PI/ Evaluator/ Statistician	Funding Agent	Title	Amount
	2011			
1	Sawilowsky, Shlomo	College of Education Tech Mini Grant	Porting Rangen and Realpops from Fortran 90 to CUDA Fortran 2008 for the NVIDIA GPU	$2,000
	2009-2011			
2	Field, S., P. I. Co.-P.I.'s: Boutelle, K., & Sawilowsky, S.	Merck-Horton Center for Teaching and Learning, St. George's School, Newport, RI	Maximizing Achievement in a Rigorous Academic Program: The Critical Role of Executive Function & Independent Engagement.	$70,034
	2008-2010			
3	P. I. Field-Hoffman, S., Co-P.I.: Sawilowsky, S	Edge Foundation	Quantifying the Effectiveness of Coaching for College Students with Attention Deficit/Hyperactivity Disorder	$303,308
	2008-2011			
4	PI: Ssemakula, M. E., Co-P.I.'s: Liao, G., Kim, K.-Y., Ellis, R. D, & Sawilowsky, S.	Division of Undergraduate Programs (DUE), National Science Foundation	Flexible Adaptation Framework for Implementing the Learning Factory - Based Manufacturing Education	$239,991

	2007-2012			
5	P.I.: Young, R. (North Carolina State University). Co-P.I.s: Chelst, K., Royster, D. (NCSU), Edwards, T., & Norwood, K. (NCSU). Evaluator: Sawilowsky, S.	Division of Research on Learning in Formal and Informal Settings, DR-K12 Resources and Tools, National Science Foundation	Mathematics Instruction using Decision Science and Engineering (MINDSET)	$2,388,945
	2008-2009			
6	P.I. Kanoyton, S. G., Statistician: Sawilowsky, S.	Michigan Department of Energy, Labor, & Economic Growth	King-Chavez-Parks Initiative	$100,000
	2007-2008			
7	P.I. Kanoyton, S. G., Statistician: Sawilowsky, S.	Michigan Department of Energy, Labor, & Economic Growth	King-Chavez-Parks Initiative	$100,000
	2004			
8	P.I.: Somers, C., Co-PI: Sawilowsky, S.	DHHS Office of Population Affairs, Center for Scientific Review, National Institutes of Health	An Experiential Teenage Pregnancy Prevention Experiment. Program extension	$20,000
	2003			
9	P.I.: Somers, C., Co-PI: Sawilowsky, S.	DHHS Office of Population Affairs, Center for Scientific Review, National Institutes of Health	An Experiential Teenage Pregnancy Prevention Experiment	$100,000
	2002-2004			
10	P.I.: Field, S. Co-PI's.: Hoffman, A., & Sawilowsky, S.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Research On Self-Determination In Elementary Settings	$540,000
	1999-2001			
11	P.I.: Field, S. Co-PI's.: Hoffman, A., & Sawilowsky, S.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Promoting self-determination for students, teachers, and administrators through pre-	$600,000

			service and in-service personnel preparation	
	1996			
12	P.I. : Sawilowsky, S.	WSU Travel Grant	International Conference on Multiple Comparisons, Tel Aviv	$500
	1995-1997			
13	P.I.: Field, S. Co-PI's.: Hoffman, A., & Sawilowsky, S.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Promoting Successful Outcomes Through Self-determination For At-Risk Youth with disabilities	$450,000
14	P.I.: Field, S. Co-PI's.: Hoffman, A., & Sawilowsky, S.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Promoting Self-determination for students with disabilities: Implementation of Steps to Self-Determination	$300,000
	1994			
15	P.I.: Sawilowsky, S.	Field Initiatied Studies, U. S. Department of Education	Assessing Detroit's Model Middle School: The Evaluation of the WSU Public School	$90,000
	1992-1995			
16	CoP.I.'s: Daeshlein, M., & Sawilowsky, S.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Peer Support For Student-Centered Transition Planning	$387,950
	1992-1994			
17	CoP.I.'s: Sawilowsky, S., Field, S., & Hoffman, A.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Research in Self-Determination	$413,112
	1991-1993			
18	P.I.: Sawilowsky, S.	WSU	College of Education Assessment	$80,858

	1991			
19	P. I.: Sawilowsky, S.	WSU	Instructional Equipment Grant	$8,950
20	P. I.: Sawilowsky, S.	College of Education	Instructional Equipment Grant	$8,590
	1990-1993			
21	P.I.: Field, S. Co-PI's.: Hoffman, A., & Sawilowsky, S.	Office of Special Education and Rehabilitation Services, U. S. Department of Education	Skills and Knowledge For Self-Determination	$349,350
	1987-1988			
22	P.I.: Sawilowsky, S.	WSU	Equipment Grant	$10,000
23	P.I.: Sawilowsky, S.	WSU Graduate School	Equipment Grant	$1,500
24	P.I.: Sawilowsky, S.	WSU College of Education	Equipment Grant	$1,500
25	P.I.: Sawilowsky, S.	WSU College of Education	Equipment Grant	$300
	TOTAL			**$6,566,880**

III: Research

A. Books Published

1. Sawilowsky, S. (2007). Making the *Shabbos* kitchen. (With editorial assistance by Yechiel Conway.) Lakewood, NJ: Pirchei Shoshanim
2. Sawilowsky, S. S., & Fahoome, G. C. (2003). *Statistics via Monte Carlo simulation with Fortran*. Rochester Hills, MI: JMASM.

B. Chapters Published

1. Authored

3. Sawilowsky, S. S. (2007). Reflections on real data analysis. In S. Sawilowsky (Ed.) *Real data analysis*. American Educational Research Association Educational Statisticians. Washington, DC: InfoAge Publishing, p. ix-xxii.
4. Sawilowsky, S. S. (2007). ANOVA: Effect sizes, interaction vs. main effects, and a modified ANOVA table. In S. Sawilowsky (Ed.) *Real data analysis*. American Educational Research Association Educational Statisticians. Washington, DC: InfoAge Publishing, p. 191-212.
5. Sawilowsky, S. S. (2007). ANCOVA and quasi-experimental design: The Legacy of Campbell and Stanley. In S. Sawilowsky (Ed.) *Real data analysis*. American Educational Research Association Educational Statisticians. Washington, DC: InfoAge Publishing, p. 213-238.
6. Sawilowsky, S., & Spence, P. R. (2007). Controlling experiment-wise type I errors: Good advice for simultaneous and sequential hypothesis testing. In S. Sawilowsky (Ed.) *Real data analysis*. American Educational Research Association Educational Statisticians. Washington, DC: InfoAge Publishing, , p. 155-162.
7. Sawilowsky, S. (2002). Reliability as psychometrics vs datametrics. In (B. Thompson, Ed.) *Score reliability: contemporary thinking on reliability issues*. Thousand Oaks, CA: Sage.

8. Sawilowsky, S. (2002). Reliability. In (B. Thompson, Ed.) *Score reliability: contemporary thinking on reliability issues*. Thousand Oak: Sage.

C. Editorship of Books

9. Sawilowsky, S. (2007). *Real data analysis*. S. Sawilowsky (Ed.). A Volume in Quantitative Methods in Education and the Behavioral Sciences: Issues, Research, and Teaching, American Educational Research Association Educational, Educational Statisticians. Greenwich, CT: Information Age Publishing.

D. Journal Articles Published

Refereed

10. Sawilowsky, S. (2011, in press).Statistical re-analysis of Jewish priests' and non-priests' haplotypes using exact methods. *Sage Open*.
11. Parker, D. R., Field Hoffman, S., Sawilowsky, S., & Rolands, L. (2011). An examination of the effects of ADHD coaching on university students' executive functioning. *Journal of Postsecondary Education and Disability*, 24(2), 115-132..
12. Ssemakula, M., Liao, G., Ellis, D., Kim, K., Aguawa, C., & Sawilowsky, S. (2011). Manufacturing Integrated Learning Laboratory (MILL): A Framework for Determination of Core Learning Outcomes in Engineering Curricula. *International Journal of Engineering Education*, 2, 1-10.
13. Sawilowsky, S. S. (2009). Very large and huge effect sizes. *Journal of Modern Applied Statistical Methods*, *8*(2), 597 – 599.
14. Solomon, S., R., & Sawilowsky, S. (2009). Impact of rank-based normalizing transformations on the accuracy of test scores. *Journal of Modern Applied Statistical Methods*, *8*(2), 448 – 462.
15. Grace, T., & Sawilowsky, S. (2009). Data error prevention and cleansing: Overview for instructors of statistics and their students. *Model Assisted Statistics and Applications*, *4*(4), 303-312.
16. Shulkin, B., & Sawilowsky, S. (2009). Estimating a population median with a small sample. *Model Assisted Statistics and Applications*, *4*(2), 143-155.
17. Cuzzocrea, J., & Sawilowsky, S. (2009). Robustness to non-independence and power of the I test for trend in construct validity. *Journal of Modern applied Statistical Methods*, *8*(1), p. 187-198.
18. Fatal-Weber, M., & Sawilowsky (2009). Comparative statistical power of the independent t, permutation t, and Wilcoxon tests. *Journal of Modern Applied Statistical Methods*, *8*(1), 21-26.
19. Cooney, M. P., & Sawilowsky (2005). Process drama and actor training. *Youth Theatre Journal*, *19*, 55-70.
20. Knapp, T., & Sawilowsky, S. S. (2005). Letter to the editor. *Journal of Nursing Measurement*, *12*(2), 7-8.
21. Sawilowsky, S. (2005). Misconceptions leading to choosing the t test over the Wilcoxon Mann-Whitney U test for shift in location parameter. *Journal of Modern Applied Statistical Methods*, *4*(2), 598-600.
22. Sawilowsky, S. (2004). A conversation with R. Clifford Blair on the occasion of his retirement. *Journal of Modern Applied Statistical Methods*, *3*(2), 518-566.

23. Mason, C., Field, S., & Sawilowsky, S. S. (2004). Implementation of self-determination activities and student participation in IEPs: Practice and attitudes of educators. *Exceptional Children*, *70*, 441-451.
24. Sawilowsky, S. (2004). Teaching Random Assignment: Do You Believe It Works? *Journal of Modern Applied Statistical Methods*, *3*(1), 221-226.
25. Washburn-Ormachea, J.M., Hillman, S. B., & Sawilowsky, S. S. (2004). Gender and gender-role orientation differences on adolescents' coping with peer stressors. *Journal of Youth and Adolescence*, 33(1), 31-40.
26. Bridge P. D., Musial, J., Roe T., Frank, R., & Sawilowsky S. S. (2003). Measurement practices: Methods for developing content valid student examinations. *Medical Teacher*, *25*, 277-284.
27. Compton, S., & Sawilowsky, S. (2003). Do not discourage the use of p-values. *Annals of Emergency Medicine*, *41*(4), 584.
28. Sawilowsky, S. S. (2003). Deconstructing arguments from the case against hypothesis testing. *Journal of Modern Applied Statistical Methods*, *2*(2), 467-474.
29. Sawilowsky, S. S. (2003). A different future for social and behavioral science research. *Journal of Modern Applied Statistical Methods*, *2*(1), 128-132.
30. Sawilowsky, S. S. (2003). You think you've got trivials? *Journal of Modern Applied Statistical Methods*, *2*(1), 218-225.
31. Sawilowsky, S. S. (2003). Trivials: The birth, sale, and final production of meta-analysis. *Journal of Modern Applied Statistical Methods*, *2*(1), 242-246.
32. Sawilowsky, S. S. (2002). Fermat, Schubert, Einstein, and Behrens-Fisher: The probable difference between two means when. *Journal of Modern Applied Statistical Methods*, *1*(2), 461-472.
33. Sawilowsky, S. (2002). A quick distribution-free test for trend that contributes evidence of construct validity. *Measurement and Evaluation in Counseling and Development*, *35*, 78-88.
34. Somers, C. L., Johnson, S. A., & Sawilowsky, S. S. (2002). A measure for evaluating the effectiveness of teen pregnancy prevention programs. *Psychology in the Schools*, *32*, 337-342.
35. Sawilowsky, S. (2002). A measure of location relative efficiency for location of a single sample. *Journal of Modern Applied Statistical Methods*, *1*(1), 52-60.
36. Sawilowksy, S., & Yoon, J. (2002). The trouble with trivials ($p > .05$). *Journal of Modern Applied Statistical Methods*, *1*(1), 143-144.
37. Sawilowsky, S., & Markman, B. S. (2002). Using the t test with uncommon sample sizes. *Journal of Modern Applied Statistical Methods*, *1*(1), 145-146.
38. Bunner, J., & Sawilowsky, S. (2002). Alternatives to S_w in the confidence interval of the trimmed mean. *Journal of Modern Applied Statistical Methods*, *1*(1), 182-187.
39. Knapp, T. R., & Sawilowsky, S. (2001). Strong arguments: Rejoinder to Thompson. *Journal of Experimental Education*, *70*, 94-95.
40. Knapp, T. R., & Sawilowsky, S. (2001). Constructive criticisms of methodological and editorial practices. *Journal of Experimental Education*, *70*, 65-79.
41. Headrick, T., & Sawilowsky, S. (2000). Weighted simplex procedures for determining boundary points and constants for the univariate and multivariate power methods. *Journal of Educational and Behavioral Statistics*, *25*(4), 417-436.

42. Sawilowsky, S. (2000). Reliability. *Educational and Psychological Measurement*, *60*, 196-200.
43. Sawilowsky, S. (2000). Psychometrics vs datametrics. *Educational and Psychological Measurement*, *60*, 157-173.
44. Sawilowsky, S. (2000) Review of the rank transform in designed experiments. *Perceptual and Motor Skills*, *90*, 489-497.
45. Novojenova, R., & Sawilowsky, S. (1999). Measurement of influence of the teacher's personality on students in the classroom. *Social Behavior and Personality: An International Journal*, *27*, 533-543.
46. Bridge, P. K., & Sawilowsky, S. (1999) Increasing physician's awareness of the impact of statistical tests on research outcomes: Investigating the comparative power of the Wilcoxon Rank-Sum test and independent samples t-test to violations from normality. *Journal of Clinical Epidemiology*, *52*, 229-236.
47. Headrick, T. C. & Sawilowsky, S. (1999). Simulating correlated nonnormal distributions: Extending the Fleishman power method. *Psychometrika*, *64*, 25-36.
48. Posch, M. A., & Sawilowsky, S. S. (1999). Measuring change with 2xc designs. *Perceptual and Motor Skills*, *88*, 559-560.
49. Nanna, M., & Sawilowsky, S. (1998). Analysis of Likert scale data in disability and medical rehabilitation evaluation. *Psychological Methods*, *3*, 55-67.
50. Hillman, S. B., Wood, P. C., & Sawilowsky, S. (1998). The Protective-Style Questionnaire: Self-protective mechanisms among stigmatized adolescents. *Social Behavior and Personality: An International Journal, 26*, 29-38.
51. Kelley, D. L., & Sawilowsky, S. (1997). Nonparametric alternatives to the F statistic in analysis of variance. *Journal of Statistical Computation and Simulation*, *58*, 343-359.
52. Bridge, P. K., & Sawilowsky, S. (1997). Revisiting the t test on ranks as an alternative to the Wilcoxon rank-sum test. *Perceptual and Motor Skills, 85*,399-402.
53. Brown, M. T., Eisenberg, A., & Sawilowsky S. S. (1997). Traditionality and the discriminating effect of expectations of occupational success and occupational values for women within math-oriented fields. *Journal of Vocational Behavior*, *50*, 418-431.
54. Wood, P. C., Hillman, S. B., & Sawilowsky, S. (1996). Locus of control, self-concept, and self-esteem among at-risk African-American adolescents. *Adolescence*, *31*, 597-604.
55. Novojenova, R., & Sawilowsky, S. (1996). Unplanned imparting of teacher's personality to students in a Russian school. *Psychological Reports*, *78*, 683-687.
56. Wood, P. C., Hillman, S. B., & Sawilowsky, S. (1995). Comparison of self-esteem scores: American and Indian Adolescents. *Psychological Reports*, *76*, 367-370.
57. Sawilowsky, S., Kelley, D. L., Blair, R. C., & Markman, B. S. (1994). Meta-analysis and the Solomon four-group design. *Journal of Experimental Education*, *62*, 361-376.
58. Hillman, S. B., Wood, P. C., & Sawilowsky, S. S. (1994). Attributional style of African-American adolescents. *Social Behavior and Personality: An International Journal*, 22, 163-176.
59. Wolf-Branigin, M., & Sawilowsky, S. (1994). Perceived importance of self-determination factors by consumers in substance-abuse treatment. *Perceptual and Motor Skills*, *79*, 284-286.
60. Blair, R. C., & Sawilowsky, S. (1993). Comparison of two tests useful in situations where a treatment is expected to increase variability relative to controls. *Statistics in Medicine*, *12*, 2233-2243.

61. Blair, R. C., & Sawilowsky, S. (1993). A note on the operating characteristics of the modified F test. *Biometrics*, *49*, 935-939.
62. Hillman, S. B., Sawilowsky, S. S., & Becker, M. J. (1993). Effects of maternal employment patterns on adolescents' substance abuse and other risk-taking behaviors. *Journal of Child and Family Studies*, *2*, 203-219.
63. Sawilowsky, S. S., and Hillman, S. B. (1992). Power of the independent samples t test under a prevalent psychometric measure distribution. *Journal of Consulting and Clinical Psychology*, *60*, 240-243.
64. Sawilowsky, S. S., and Blair, R. C. (1992). A more realistic look at the robustness and type II error properties of the t test to departures from population normality. *Psychological Bulletin, 111*, 353-360.
65. Hillman, S. B., & Sawilowsky, S. S. (1992). A comparison of two grouping methods in distinguishing levels of substance use. *Journal of Clinical Child Psychology*, *21*, 348-353.
66. Field, S., Hoffman, A., St. Peter, S., & Sawilowsky, S. (1992). Effects of disability labels on teachers' perceptions of students' self-determination. *Perceptual and Motor Skills*. 75, 931-934.
67. Hillman, S. B., Wood, P. C., and Sawilowsky, S. (1992). Externalization as a self-protective mechanism in a stigmatized group. *Psychological Reports*, *70*, 641-642.
68. Wood, P. C., Hillman, S. B., and Sawilowsky, S. (1992). Self-concept among African-American at-risk adolescents. *Perceptual and Motor Skills*, *74*, 465-466.
69. Sawilowsky, S., and Brown, M. T. (1991). On using the t test on ranks as an alternative to the Wilcoxon test. *Perceptual and Motor Skills*, *72*, 860-862.
70. Hillman, S. B., and Sawilowsky, S. S. (1991). Maternal employment and early adolescent substance use. *Adolescence*, *26*, 829-837.
71. Hillman, S. B., and Sawilowsky, S. S. (1990). Multidimensional differences between adolescent substance abusers and users. *Psychological Reports*, *68*, 115-122.
72. Sawilowsky, S. S. (1990). Nonparametric tests of interaction in experimental design. *Review of Educational Research*, *60*, 91-126.
73. Sawilowsky, S. S., Blair, R. C., and Micceri, T. (1990). REALPOPS.LIB: a PC FORTRAN library of eight real distributions in psychology and education. *Psychometrika*, *55*, 729.
74. Sawilowsky, S. S., and Markman, B. S. (1990). Rejoinder to Braver and Braver. *Perceptual and Motor Skills*, *71*, 424-426.
75. Sawilowsky, S. S., and Markman, B. S. (1990). Another look at the power of meta-analysis in the Solomon four-group design. *Perceptual and Motor Skills*, *70*, 177-178.
76. Sawilowsky, S., Blair, R. C., and Higgins, J. J. (1989). An investigation of the type I error and power properties of the rank transform procedure in factorial ANOVA. *Journal of Educational Statistics*, *14*, 255-267.
77. Blair, R. C., Sawilowsky, S. S., and Higgins, J. J. (1987). Limitations of the rank transform in factorial ANOVA. *Communications in Statistics: Computations and Simulations*, *B16*, 1133-1145.
78. Lavely, C., Fisher, T., Berger, N., Bullock, D., Follman, J., Hines, C., and Sawilowsky, S. (1986). Florida Master Teacher Program: testing teacher subject matter knowledge. *Florida Journal of Educational Research*, Fall, *28*, No. 1, 83-97.

79. Sawilowsky, S. (1985). A comparison of random normal scores test under the F and Chi-square distributions to the 2x2x2 ANOVA test. *Florida Journal of Educational Research*, Fall, *27*, 83-97.

Invited

80. Sawilowsky, S. (2011). Statistical fallacies, misconceptions, and myths. *International Encyclopedia of Statistical Science*. NY: Springer, 1412-1417.
81. Sawilowsky, S. (2011). In defense of frequentist hypothesis testing. *International Encyclopedia of Statistical Science*. NY: Springer, 547-551..
82. Sawilowsky, S., Sawilowsky, J., & Grissom, R. J. (2011). Effect size. *International Encyclopedia of Statistical Scienc*e. NY: Springer, 426-429.

Note: The *International Encyclopedia of Statistical Science* was nominated by the Republic of Serbia for the 2011 Nobel Peace Prize.

83. Sawilowsky, S. (2006). Jakob Bernoulli. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*,*1*, p. 86-87. Thousand Oaks, CA: Sage.
84. Sawilowsky, S. (2006). Construct Validity. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*,*1*, p. 178-181. Thousand Oaks, CA: Sage.
85. Sawilowsky, S. (2006). Journal of Modern Applied Statistical Methods. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *2*, 499-500. Thousand Oaks, CA: Sage.
86. Sawilowsky, S. (2006). KR-20 and KR-21. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *2*, 516-519. Thousand Oaks, CA: Sage.
87. Sawilowsky, S. (2006). Mann Whitney U Test. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *2*, p. 566-567. Thousand Oaks, CA: Sage.
88. Sawilowsky, S., & Shulkin, B. (2006). Andrei Andreevich Markov. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *2*, p. 567-568. Thousand Oaks, CA: Sage.
89. Sawilowsky, S. (2006). Simeon-Denis Poisson. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *2*, p. 771-772. Thousand Oaks, CA: Sage.
90. Sawilowsky, S. (2006). Wilcoxon Signed-RanksTest. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *3*, p. 1051-1053. Thousand Oaks, CA: Sage.
91. Fahoome, G., & Sawilowsky, S. (2006). Median Test. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *2*, p. 592-595. Thousand Oaks, CA: Sage.
92. Shulkin, B., & Sawilowsky, S. (2006). Estimates of the Population Median. In N. Salkind, (Ed.), *Encyclopedia of Measurement and Statistics*, *1*, p. 316-328. Thousand Oaks, CA: Sage.82.
93. Sawilowsky, S. (2005). *Tukey quick test*. In B. Everitt & D. Howell (Eds.), *Encyclopedia of Behavioral Statistics*, *4*, 2069-2070. London: Wiley.
94. Sawilowsky, S., & Fahoome, G. (2005). *Friedman test*. In B. Everitt D. Howell (Eds.), *Encyclopedia of Behavioral Statistics*. London: Wiley.
95. Sawilowsky, S., & Fahoome, G. (2005). *Kruskal-Wallis test*. In B. Everitt & 64. D. Howell (Eds.), *Encyclopedia of Behavioral Statistics*. London: Wiley.
96. Sawilowsky, S., & Fahoome, G. (2005). *Page's ordered alternative test*. In B. Everitt & D. Howell (Eds.), *Encyclopedia of Behavioral Statistics, 3*, p. 1503-1504. London: Wiley.

97. Sawilowsky, S. (2005). *Sign test*. In B. Everitt & D. Howell (Eds.), *Encyclopedia of Behavioral Statistics*, *4*, 1832-1833. London: Wiley.
98. Sawilowsky, S., & Fahoome, G. (2005). *Signed ranks test*. In B. Everitt & D. Howell (Eds.), *Encyclopedia of Behavioral Statistics*, *4*, 1837-1838. London: Wiley.
99. Lunnenberg, C., & Sawilowsky, S. (2005). *Median test*. In B. Everitt & D. Howell (Eds.), *Encyclopedia of Behavioral Statistics*. London: Wiley.
100. Sawilowksy, S. S. (1998). Comments on using robust statistics in social and behavioral science. *British Journal of Mathematical and Statistical Psychology*, *51*, 49-52.
101. Sawilowsky, S. S. (1993). Comments on using alternatives to normal theory statistics in social and behavioral science. *Canadian Psychology*, *34*, 398-406.

Non-refereed

102. Sawilowsky,S. (2011, in press). *Tana Hu U'Falig, Yalkut Shoshanim 5*.
103. Sawilowsky, S. (2011, in press). An introduction to Jewish mysticism and philosophy. *Yalkut Shoshanim*, *5*.
104. Sawilowsky, S. (2010). *Tefilah. Yalkut Shoshanim*, *4*, 25-51.
105. Sawilowsky, S. (2010). *Ha'azinu. Yalkut Shoshanim*, 4, 52-57.
106. Sawilowsky, S. (2009). *Noach. Yalkut Shoshanim*, 3, 82-96.
107. Sawilowsky, S. (2008). *Balak. Yalkut Shoshanim*, 2, 41-48.
108. Sawilowsky, S., Schochet, C., & Cuzzocrea, J. (2007). Jacques Salomon Hadamard and the use of symbols in teaching differential calculus. *Journal of Modern Applied Statistical Methods*, *6*(1), 358-367.
109. Sawilowsky, S. (2007). Mathematics in Volume 1 of *Scripta Universitatis*. *Journal of Modern Applied Statistical Methods*, 7(1), 350-354.
110. Sawilowsky, S., & Cuzzocrea, J. (2006). Joseph Liouville's 'Mathematical works of Evariste Galois'. *Journal of Modern Applied Statistical Methods*, *5*(2), 589-592.
111. Cuzzocrea, J., & Sawilowsky, S. (2006). Peitro Paoli, Italian algebraist. *Journal of Modern Applied Statistical Methods*, *5*(2), 593-595.
112. Sawilowsky, S. S. (2006). Statistical pronouncements V. *Journal of Modern Applied Statistical Methods*, *5*(1), 282-283.
113. Sawilowsky, S. S. (2005). Statistical pronouncements IV. *Journal of Modern Applied Statistical Methods*, *4*(2), 627-628.
114. Sawilowsky, S. S. (2005).Abelson's paradox and the Michelson-Morley experiment. *Journal of Modern Applied Statistical Methods*, *4*(1), 352.
115. Sawilowsky, S. S. (2004). Statistical pronouncements III. *Journal of Modern Applied Statistical Methods*, *3*(1), 259-260.
116. Sawilowsky, S. S. (2003). Statistical Pronouncements II. *Journal of Modern Applied Statistical Methods*, *2*(2), 533-534.
117. Sawilowsky, S. S. (2003). Statistical Pronouncements. *Journal of Modern Applied statistical Methods*, *2*(1), 279-280.
118. Sawilowsky, S., & Musial, J. (1998). Modeling attention deficit hyperactivity disorder as exponential decay. *The ADHD Report*, *6*, 10-11.
119. Isaacson, S., & Sawilowsky, S. (1992). A note on the reliability of the problem oriented screening instrument for teenagers (POSIT). *Journal for Juvenile Justice and Detention Services*, *7*, 22.

E. Papers/Abstracts Published In Conference Proceedings

1. Refereed

120. Ssemakula, M. E., Aguwa, C., Ellis, R. D., Kim K-Y., Liao, G., & Sawilowsky S. (2011). "Manufacturing integrated learning lab (MILL): A curriculum model for hands-on manufacturing education." Proceedings: American Society for Engineering Education Annual Conference & Exposition. Vancouver, BC, Canada.
121. Ssemakula, M., Liao, G., Ellis, D., Kim, K., Sawilowsky, S. (2009). Introducing a flexible adaptation framework for implementing 'learning factory' – based manufacturing education. Proceedings: American Society for Engineering Education Annual Conference. http://soa.asee.org/paper/conference/paper-view.cfm?id=10795.
122. Sawilowsky, S., & Shulkin, B. (May 18, 2007). "Estimating the population median." *Festschrift in honor of distinguished professor of statistics Mir Masoom Ali*. Muncie, Indiana: Ball State University, p. 256-267.
123. Headrick, T., & Sawilowsky, S. (August, 1997). Simulating correlated multivariate nonnormal distributions: Extending the Fleishman power methods. *Abstracts: Joint Statistical Meetings*, Anaheim, CA., p. 109.
124. Posch, M. A., & Sawilowsky, S. (August, 1997). Comparison of exact and asymptotic tests for the 2xc ordinal categorical layout. *Abstracts: Joint Statistical Meetings*, Anaheim, CA., p. 129.
125. Sawilowsky, S. (June 23, 1996). Controlling Experiment-wise Type I error in the Solomon Four-group design. *Proceedings of the International Conference On Multiple Comparisons*. Tel Aviv, Israel.
126. Sawilowsky, S., Kelley, D. L., & Blair, R. C. (August, 1994). Comparison of tests for interaction in the balanced 2x2x2 layout. *Joint Statistical Meetings*, Toronto, Canada.
127. Blair, R. C., & Sawilowsky, S. (August, 1993). Fixing the modified F test. *Joint Statistical Meetings*, San Francisco.
128. Blair, R. C., & Sawilowsky, S. (October, 1992). A distribution-free maximum test of location for two independent samples. *MWERA Researcher*, abstract.
129. Blair, R. C., & Sawilowsky, S. (August, 1992). Type I error and power of the modified and generalized t tests. *Joint Statistical Meetings*, Boston, p. 86.
130. Hillman, S. B., Wood, P. C., and Sawilowsky, S. S. (April, 1992). *Conference Proceedings: The Troubled Adolescent: The Nation's Concern and Its Response*. University of Wisconsin-Stout, Milwaukee, WI.
131. Hillman, S. B., Wood, P. C., and Sawilowsky, S. S. (April, 1991). Adolescent drug use and abuse. *Conference Proceedings: The Troubled Adolescent: The Nation's Concern and Its Response*. University of Wisconsin-Stout, Milwaukee, WI, 6-10.
132. Blair, R. C., & Sawilowsky, S. (October, 1991). Confounding covariates in nonrandomized studies. *MWERA Researcher*. Kent State University, abstract.
133. Sawilowsky, S., and Markman, B. (October, 1990). Guilt. *MWERA Researcher Abstracts*. Kent State University.
134. Snyder, J., and Sawilowsky, S. (October, 1990). A qualitative analysis of communication skills in the Detroit Compact. *MWERA Researcher Abstracts*. Kent State University.

135. Ogunyemi, O., and Sawilowsky, S. (October, 1989). The systemic approach to instructional design in the Detroit compact. *MWERA Researcher Abstracts*. Kent State University.
136. Sawilowsky, S. (October, 1988). Failure of the random normal scores and expected normal scores transform tests for interaction in the 2x2x2 ANOVA. *MWERA Researcher Abstracts*, Kent State University.
137. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (1986). Causes of the criterion problem in the evaluation of effectiveness of teaching. *National Social Sciences Association Proceedings*, *1*, 1-6.
138. Lavely, C., Follman, J., and Sawilowsky, S. (November 19-21, 1986). Causes of the criterion problem in evaluation of effectiveness of teaching. *Mid-South Educational Research Association Program and Proceedings*, Fifteenth Annual Meeting, abstract.
139. Lavely, C., Hines, C., Kromrey, J., and Sawilowsky, S. (November 19-21, 1986). Survey of characteristics of Florida master teachers. *Mid-South Educational Research Association Program and Proceedings*, Fifteenth Annual Meeting, abstract.
140. Lavely, C., Follman, J., & Sawilowsky, S. (November 19, 1986). Expertise in teaching: expert pedagogues. *Mid-South Educational Research Association Program and Proceedings*, Fifteenth Annual Meeting, abstract.
141. Sawilowsky, S., and Follman, J. (November 19-21, 1986). Teacher merit pay plan 'fresh' ideas. *Mid-South Educational Research Association Program and Proceedings*, Fifteenth Annual Meeting, abstract, 123-124.
142. Lavely, C., Ward, A., Berger, N., Bullock, D., Follman, J., Hines, C., and Sawilowsky, S. (1986). Teacher subject area examinations in the Florida Teacher Merit Pay program. *Proceedings: Association of Teacher Educators*, *76*, 25-26.
143. Lavely, C., Bullock, D., Follman, J., Hall, B., Hines, C., Sawilowsky, S., and Ward, A. (November 6-8, 1985). Teacher subject area examinations in the Florida teacher merit pay plan. *Mid-South Educational Research Association Program and Proceedings*, abstract.

G. Abstracts Published in Academic Journals

144. Roder, B. J., & Sgan (M. L.) (Eds.) (2004). *Infants to adolescents: Research update: A digest of current research in the field of child and adolescent development, 5*(2), p. 5. (Washburn-Ormachea, J.M., Hillman, S. B., & Sawilowsky, S. S. (2004). Gender and gender-role orientation differences on adolescents' coping with peer stressors. *Journal of Youth and Adolescence*, 33(1), 31-40.)

K. Instructional Materials Formally Published

1. Textbooks

145. Sawilowsky, S. S., & Fahoome, G. F. (2003). CD to accompany *Statistics through Monte Carlo simulation with Fortran*. Rochester Hills, MI: JMASM.

N. Other Scholarly Work (Published)

Software

146. Fahoome, G., & Sawilowsky, S. S. (2001). Rangen 2.0. College of Education, Wayne State University.
147. Sawilowsky, S., & Blair, R. C. (1987). RANGENPC 1.0. College of Education, Wayne State University.

Standardized Tests Published

148. Keene, K., Edwards, T., Pugalee, D., Norde, I., Scott, B., & Sawilowsky, S. (2011). *Math Attitude Survey*. Raleigh, NC: North Carolina State University.
149. Keene, K., Edwards, T., Pugalee, D., Norde, I., Scott, B., & Sawilowsky, S. (2011). *Problem Solving Assessment*. Raleigh, NC: North Carolina State University.
150. Field, S., Parker, D., Sawilowsky, S., & Rolands, L. (2010). *College Well Being*. Detroit, MI: College of Education, Wayne State University.
151. Ssemakula, M. E., Liao, G., Kim, K-Y, Aguwa, C, Darin, E., Sawilowsky, S., & consortium partners (New Mexico State University, Prairie View A&M University, & Macomb Community College). (2010). *Manufacturing Integrated Learning Lab (MILL) Pretest*. Detroit, MI: College of Manufacturing Engineering, Wayne State University.
152. Ssemakula, M. E., Liao, G., Kim, K-Y, Aguwa, C, Darin, E., & Sawilowsky, S. & consortium partners (New Mexico State University, Prairie View A&M University, & Macomb Community College). (2010). *Manufacturing Integrated Learning Lab (MILL) Posttest*. College of Manufacturing Engineering. Detroit, MI: College of Manufacturing Engineering, Wayne State University.
153. Field, S., Hoffman, A., & Sawilowsky, S. (2006). *Self-Determination Knowledge Scale, Form A and Form B, revised*. Austin, Texas: *Pro-Ed*.
154. Field, S., Hoffman, A., & Sawilowsky, S. (2001). *Self-Determination Student Self-Perception Scale (SDSSPS)*. College of Education, Wayne State University.
155. Field, S., Hoffman, A., & Sawilowsky, S. (1995). *Self-Determination Knowledge Scale, Form A and Form B*. Austin, Texas: *Pro-Ed*.
156. Field, S., Hoffman, A., & Sawilowsky, S. (1994). *Self-Determination Behavioral Observation Checklist (SDOC), revised*. College of Education, Wayne State University.
157. Field, S., Hoffman, A., & Sawilowsky, S. (1994). *Self-Determination Knowledge Scale (SDKS), pretest*. College of Education, Wayne State University.
158. Field, S., Hoffman, A., & Sawilowsky, S. (1994). *Self-Determination Knowledge Scale (SDKS), posttest*. College of Education, Wayne State University.
159. Field, S., Hoffman, A., & Sawilowsky, S. (1994). *Self-Determination Parent Perception Scale (SDPPS)*. College of Education, Wayne State University.
160. Field, S., Hoffman, A., & Sawilowsky, S. (1994). *Self-Determination Teacher Perception Scale (SDTPS)*. College of Education, Wayne State University.
161. Field, S., Hoffman, A., & Sawilowsky, S. (1994). *Self-Determination Student Scale (SDSS)*. College of Education, Wayne State University.
162. Field, S., Hoffman, A., & Sawilowsky, S. (1992). *Self-Determination Scale (SDS): Form A, Form B*. Developmental Disabilities Institute, Wayne State University.
163. Field, S., Hoffman, A., Sawilowsky, S., & St. Peter (1991). *Self-Determination Behavioral Observation Checklist (SDOC)*. Developmental Disabilities Institute, Wayne State University.
164. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program: *Art Education*. Published by Educational Testing Service, Princeton, N.J. for the Florida State Department of Education.

165. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program: *Home Economics*. Published by Educational Testing Service, Princeton, N.J. for the Florida State Department of Education.

166. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program: *Reading*. Published by Educational Testing Service, Princeton, N.J. for the Florida State Department of Education.

167. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program:. Published by Educational Testing Service, Princeton, N.J. for the Florida State Department of Education: *School Psychology*. Published by Educational Testing Service, Princeton, N.J. for the Florida State Department of Education.

168. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program: *Speech and Language Disorders*. Published by Educational Testing Service, Princeton, N.J. for the Florida State Department of Education.

169. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Biology*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

170. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Business Education*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

171. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Chemistry*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

172. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Earth Science*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

173. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Elementary Education*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

174. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Emotionally Handicapped*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

175. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master

Teacher Program; Alternate Forms for *English*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

176. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *General Science*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
177. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Gifted Education*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
178. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., &Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for: *Mathematics*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
179. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Mentally Handicapped*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
180. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Music*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
181. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Physics*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
182. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Spanish*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.
183. Lavely, C., Berger, N., Bullock, D., Follman, J., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). Subject Area Tests for the Florida Master Teacher Program; Alternate Forms for *Specific Learning Disabilities*. Published by Educational Testing Service, Princeton, N.J. for the Florida Department of Education.

Criterion-Referenced Tests Published

184. Sawilowsky, S., Field, Sharon, Hoffman, A., Sinelli, N., & Bloomingstein-Bott, L. (2011). *Weinberg Village Self-determination Teacher Perception Scale*. West Bloomfield, MI: Friendship Circle.
185. Sinelli, N., Bloomingstein-Bott, L., & Sawilowsky, S. (2008). *Weinberg Village Behavioral Observation Checklist Battery: Bank, Bicycle, Ice cream stand, Library, Medical Office, Movies, Pet Store, Popcorn Stand, Salon, Savon Drugs, Traffic, Workshop*. West Bloomfield, MI: Friendship Circle.
186. Sinelli, N., Bloomingstein-Bott, L., & Sawilowsky, S. (2008). *Wineberg Village Teacher's Survey*. West Bloomfield, MI: Friendship Circle.

187. Sinelli, N., Bloomingstein-Bott, L., & Sawilowsky, S. (2008). *Wineberg Village Parents's Survey*. West Bloomfield, MI: Friendship Circle.
188. Sawilowsky, S., & faculty of College of Education, Wayne State University (1991). *College Assessment Test*. College of Education, Wayne State University.
189. Evans, D., Snyder, J. A., Ogunyemi, O. A., Sawilowsky, S. S., & Staff of Detroit Compact. (1988). *Detroit Compact High School Math Test Form A (Pretest)*. College of Education, Wayne State University.
190. Evans, D., Snyder, J. A., Ogunyemi, O. A., Sawilowsky, S. S., & Staff of Detroit Compact. (1988). *Detroit Compact High School Math Test Form B (Posttest)*. College of Education, Wayne State University.

Educational Resources Information Center (ERIC)

191. Hillman, S. B., & Sawilowsky, S. (1992). Profiles of adolescent substance abstainers, users, and abusers. CG 023 770.
192. Sawilowsky, S., & Hillman, S. B. (1991). Sample size tables, t test, and a prevalent psychometric distribution. ED 336 411.
193. Blair, R. C., & Sawilowsky, S. (1991). Confounding covariates in nonrandomized studies. ED 336 411.
194. Sawilowsky, S., & Blair, R. C. (1991/1989). An investigation of the Type I error and power properties the rank transform statistic. ED 322 149.
195. Hillman, S. B., Sawilowsky, S. S., Becker, M. J., & Ogilvie, L. A. (1990). Effects of maternal employment on adolescent substance use. ED 322 412
196. Hillman, S. B., Becker, M. J., Ogilvie, L. A., & Sawilowsky, S. (1990). Survey results of use of drugs and alcohol among high school students. ED 321 176
197. Sawilowsky, S., & Markman, B. (1989). Guilt. ED 316 557.
198. Sawilowsky, S., & Markman, B. (1988). Another look at the power of meta-analysis in the Solomon four-group design. ED 316 556.

Technical Reports

199. Field, S., Parker, D., Sawilowsky, S., & Rolands, L. (2010). *Quantifying the Effectiveness of Coaching for College Students with Attention Deficit/Hyperactivity Disorder. Edge Foundation*, Seattle, WA. http://www.edgefoundation.org/wp-content/ uploads/2010/11/ Edge-Report-11-10-exec-summary.pdf, 231 pp.
200. Field, S., Blumenstein-Bott, L., Sinelli, N., & Sawilowsky, S. (2008). *Acquisition of life skills in a simulated town for students with disabilities*. West Bloomfield, MI: Friendship Circle, 18 pp.
201. Somers, C., & Sawilowsky, S. (2004). *An Experiential Teenage Pregnancy Prevention Experiment Final Report*. College of Education, Wayne State University.
202. Field, S., Hoffman, A., & Sawilowsky, S. (2004*). Research On Self-Determination In Elementary Settings Final Report*. College of Education, Wayne State University.
203. Field, S., Hoffman, A., & Sawilowsky, S. (2001). *Promoting self-determination for students, teachers, and administrators through pre-service and in-service personnel preparation Final Report*. College of Education, Wayne State University.
204. Field, S., Hoffman, A., & Sawilowsky, S. (1996). *Research in Self-Determination Final Report*. College of Education, Wayne State University. 27 pp.

205. Hoffman, A., Field, S., & Sawilowsky, S. (1996). *Self-determination Assessment Battery User's Guide*. College of Education, Wayne State University. 77 pp.
206. Jannis, J., Colombo, M., & Sawilowsky, S. (April, 1996). *Lessons in school reform: An evaluation of an university operated charter middle school*. College of Urban, Labor, and Metropolitan Affairs, Wayne State University, 62 pp.
207. Sawilowsky, S. (1995). *1994 UPS MEAP Report. University Public School Evaluation Formative Report Series Addendum 3a.* College of Urban, Labor, & Metropolitan Affairs, Wayne State University. 10 pp.
208. Sawilowsky, S. (1995). *Parent Assessment: UPS 1993-1994. University Public School Evaluation Formative Report Series 6*. College of Urban, Labor, & Metropolitan Affairs, Wayne State University. 12 pp.
209. Field, S., Hoffman, A., St. Peter, S., & Sawilowsky, S. (1994). *Skills and knowledge for self-determination: Final Research Report*. College of Education, Wayne State University.
210. Evans, D., Snyder, J. A., Sawilowsky, S. S., & Staff of the Detroit Compact Initial Project. (1990). *The Detroit Compact: 1988-1989 academic year and professional development: Part II.* College of Education, Wayne State University.
211. Evans, D., Snyder, J. A., Ogunyemi, O. A., Sawilowsky, S. S., & Staff of the Detroit Compact. (1989). *The Detroit compact: initial project. Part I: curriculum development and summer pilot program*. Detroit Compact, College of Education, Wayne State University: Detroit MI.
212. Institute For Instructional Research and Practice (1986). *Editorial manual for item and test development*. University of South Florida.
213. Lavely, C., Berger, N., Bullock, D., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1986). *The Florida master teacher subject area examination - scoring and reporting procedures: 1985-1986.* Florida Department of Education.
214. Sawilowsky, S., & Staff of Institute For Instructional Research and Practice. (1986). *Analyses of the 1985 Florida master teacher data tapes*. University of South Florida.
215. Sawilowsky, S., & Staff of Institute For Instructional Research and Practice.(1985). *Test reliability and the development of the Content Area Teacher Tests (CATT)*. University of South Florida.
216. Sawilowsky, S., & Staff of Institute For Instructional Research and Practice. (1985). *Effects of deleting items on the Content Area Teacher Tests (CATT)*. University of South Florida.
217. Sawilowsky, S., & Staff of Institute For Instructional Research and Practice. (1985) *Content validity and the test development process* . University of South Florida.
218. Lavely, C., Berger, N., Bullock, D., Ward, A., Sawilowsky, S., & Staff of Institute For Instructional Research and Practice (1985). *The Florida master teacher subject area examination - scoring and reporting procedures: 1984-1985.* Florida Department of Education.
219. Lavely, C., Berger, N., Bullock, D., Ward, A., Sawilowsky, S., Follman, J., Hall, B., Hines, C., Caldwell, E., & Staff of Institute For Instructional Research and Practice (1985). *The Florida master teacher program: development of the content area tests. Technical report: 1984-85*. Florida Department of Education.

L. Papers Presented

1. Invited and/or Refereed Internationally or Nationally:

a. Invited

220. Sawilowsky, S. (2009, August 17). *Post 1980 Monte Carlo contributions to real data analysis: Estimation, inference, and application.* Plenary invited presentation "Guide for the Perplexed: Toward Healthier Statistical Analyses Series." 117th annual conference of the American Psychological Association, Toronto, Canada.

221. Sawilowsky, S., & Shulkin, B. (May 18, 2007). "New small sample estimators of the population median." Invited paper presented at the Statistics Conference in Honor of George and Frances Ball Distinguished Professor of Statistics Mir Masoom Ali on the Occasion of his Retirement, Ball State University, Muncie, Indiana.

222. Blair, R. C., & Sawilowsky, S. (April 6, 1987). Insights into the lackluster performance of the rank transform in testing for higher order interactions in factorial ANOVA. Invited Lecturer Series, Department of Statistics, Kansas State University, Manhattan, Kansas.

b. Refereed

223. Lance, M., & Sawilowsky, s. (2011). Type I and II Errors for improved critical values for the Winsorized t-test. Annual meeting of the American Statistical Association, Miami, Fl.

224. Farrell-Singleton, P., & Sawilowsky, S. (2011). Improved critical values for the two independent samples Winsorized t-test. Annual meeting of the American Statistical Association, Miami, Fl.

225. Ssemakula, M., Liao, G., Ellis, D., Kim, K., & Sawilowsky, S. (March, 2011). Manufacturing integrated learning lab (MILL): A curriculum model for hands-on manufacturing education. Vancouver, BC, Canada.

226. O'Connell, M. B., Salinitri, F. D., Smith, J. M., Garwood, C., Lehr, V. T, Sipe, L. v., Sawilowsky, S. S. (July, 2011). Standardized assessment of observed structured clinical examinations. Annual meeting of the American Association of Colleges of Pharmacy. San Antonia, TX.

227. Ssemakula, M., Liao, G., Ellis, D., Kim, K., & Sawilowsky, S. (June, 2009). Introducing a flexible adaptation framework for implementing 'learning factory' – based manufacturing education. American Society for Engineering Education Annual Conference, Austin, TX.

228. Solomon, S., & Sawilowsky, S. (April, 2009). A Comparison of Ranking Methods for Normalizing Scores. Paper to be presented at the annual conference of the American Educational Research Association, SIG/Educational Statisticians. San Diego, CA.

229. Shulkin, B., & Sawilowsky, S. (August, 2006). Estimating the population median from a small sample. Paper presented at the annual conference of the American Statistical Association, Seattle, WA.

230. Sawilowsky, S. S. . (August, 2003). A different future for social and behavioral science research. Annual Meeting of the American Psychological Association.

231. Sawilowsky, S., & Yoon, J. (August 22, 2001). The trouble with trivials ($p > .05$). 54rd Session of the International Statistical Institute. Seoul, Republic of Korea.

232. Sawilowsky, S., & Lee, K. (April, 2001). The probable difference between two means when $\sigma_1 \neq \sigma_2$. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians. Seattle, WA.
233. Headrick, T., & Sawilowsky, S. (April, 2000). Robustness and power of the factorial RT ANCOVA. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians. New Orleans, LA.
234. Fahoome, G., & Sawilowsky, S. (April, 2000). Twenty nonparametric statistics. Annual meeting of the American Educational Research Association, SIG/Educational Statisticians, New Orleans, LA.
235. Sawilowsky, S. (April, 1999). A quick distribution-free test for trend that contributes evidence of construct validity. Annual meeting of the National Conference on Measurement in Education, Montreal, Canada.
236. Sawilowsky, S. (April, 1999). A measure of relative efficiency for location of a single sample. Annual meeting of the American Educational Research Association, SIG/Educational Statisticians, Montreal, Canada.
237. Sawilowsky, S., & Rothenberg, L. (April, 1999). Teaching random assignment: Do you believe it works? Annual meeting of the American Educational Research Association, SIG/Educational Statisticians, Montreal, Canada.
238. Sawilowsky S. (January, 1999). A quick distribution-free test for trend that contributes evidence of construct validity. Statistics Symposium on Selected Topics in Nonparametric Statistics, Gainesville, FL.
239. Headrick, T., & Sawilowsky, S. (January, 1999). Type I error and power of the rank transform factorial ANCOVA. Statistics Symposium on Selected Topics in Nonparametric Statistics. Gainesville, FL.
240. Headrick, T., & Sawilowsky, S. (January, 1999). The best test for interaction in factorial ANOVA and ANCOVA. Statistics Symposium on Selected Topics in Nonparametric Statistics. Gainesville, FL.
241. Headrick, T., & Sawilowsky, S. (August, 1998). Simulating correlated multivariate nonnormal distributions: Extending the Fleishman Procedure. Joint Statistical Meetings, American Statistical Association. Anaheim, CA.
242. Headrick, T., & Sawilowsky, S. (April, 1998). Weighted simplex procedures for determining boundary points and constants for the power method. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians, San Diego, CA.
243. Headrick, T., & Sawilowsky, S. (April, 1998). Constants and boundary points for the Fleishman power method. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians, San Diego, CA.
244. Posch, M., & Sawilowsky, S. (August, 1997). A comparison of exact tests for the analysis of sparse contingency tables. Joint Statistical Meetings, American Statistical Association.
245. Sawilowsky, S. S. (April, 1997). Quasi-experimental design. American Educational Research Association, Division D, Measurement and Research Methodology; and SIG/Educational Statisticians, Chicago, IL.
246. Hillman, S. B., Wood, P. C., & Sawilowsky, S. (April, 1997). Self-protective mechanisms of academically at-risk African-American adolescents. American

Educational Research Association, Division G; Division E; SIG/ Bilingual Education Research, Chicago, IL.

247. Sawilowsky, S. S. (June, 1996). Controlling experiment-wise type I error of meta-analysis in the Solomon four-group design. International Conference on Multiple Comparison Procedures. Tel Aviv, Israel.
248. Sawilowsky, S. S., Bridge, P., & Nanna, M. (August, 1996). Comparison of parametric and nonparametric statistics with real data sets. Annual Meeting of the American Psychological Association, Division 5, Measurement and Evaluation. Toronto, Canada.
249. Sawilowsky, S. S., Hoffman, A., & Field, S. (August, 1996). Development and analysis of a self-determination test battery. Annual Meeting of the American Psychological Association, Division 5, Measurement and Evaluation. Toronto, Canada.
250. Hillman, S. B., Wood, P. C., & Sawilowsky, S. S. (August, 1996). Self-protective mechanisms among stigmatized adolescents. Annual Meeting of the American Psychological Association, Division 45, The Society for the Psychological Study of Ethnic Minority Issues. Toronto, Canada.
251. Sawilowsky, S. S. (April, 1996) Encyclopedia of educational and psychological effect sizes. Annual Meeting of the American Educational Research Association, Division D, Measurement and Research Methodology, NY, NY.
252. Field, S., Hoffman, A., & Sawilowsky, S. (November, 1995). Promoting self-determination for youth with severe behavior disorders. 19th Annual Meeting of the Teacher Educators for Children with Behavioral Disorders. Tempe, AZ.
253. Kelley, D. L., & Sawilowsky, S. (April, 1995). Comparison of ANOVA, Blair-Sawilowsky, McSweeny, and Harwell-Serlin tests for interaction in the 2x2x2 layout. American Educational Research Association, SIG/Educational Statisticians. San Francisco, CA.
254. Assel, M., & Sawilowsky, S. (April, 1995). Suggestopedia and academic achievement. American Educational Research Association, SIG/Multilingual Education. San Francisco, CA.
255. Sawilowsky, S., Kelley, D. L., & Blair, R. C. (August, 1994). Comparison of parametric and nonparametric tests of interaction in the 2x2x2 ANOVA layout. American Statistical Association, Joint Statistical Meetings, Toronto, Canada.
256. Sawilowsky, S., Kelley, D. L., & Markman, B. S. (April, 1994). Comparative power of meta-analysis in the Solomon four-group design. Annual Meeting of the American Educational Research Association, Division D, Measurement and Research Methodology, New Orleans, LA.
257. Blair, R. C., & Sawilowsky, S. (April, 1994). Fixing the modified F test: two new approximate randomization tests. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians, New Orleans, LA.
258. Blair, R. C., & Sawilowsky, S. S. (August, 1993). Fixing the modified F test. Joint Statistical Meetings, Annual Meeting of the American Statistical Association, Division A, Biometrics, San Francisco, CA.
259. Sullivan, P., Sawilowsky, S., Lewis, C. M., & Eng, A. M. (February 19, 1993). Yalom factor research: threats to internal validity. American Group Psychotherapy Association.
260. Field, S., Hoffman, A., & Sawilowsky, S. (November, 1992). Skills for self-determination. TASH: The Association for Persons with Severe Handicaps, San Francisco, CA.

261. Hillman, S., Wood, P. C., & Sawilowsky, S. (August, 1992). Three studies supporting self-protective mechanisms in stigmatized minority adolescents. Annual Meeting of the American Psychological Association, Division 45, The Society for the Psychological Study of Ethnic Minority Issues, Washington, D. C.
262. Field, S., Hoffman, A., St. Peter, S., & Sawilowsky, S. (August, 1992). Disability labels effects on perceptions and observations of self-determination. American Psychological Association, Division 33, Mental Retardation, Washington, D. C.
263. Blair, R. C., & Sawilowsky, S. (August, 1992). Type I error and power properties of the O'Brien and Brownie-Boos-Hughes Oliver t tests. Joint Statistical Meetings, Annual Meeting of the American Statistical Association, Division A, Biometrics, Boston, MA.
264. Blair, R. C., & Sawilowsky, S. (April, 1992). A comparison of the generalized and modified t tests. Annual Meeting of the American Educational Research Association, SIG/ Educational Statisticians, San Francisco, CA.
265. Sawilowsky, S., & Hillman, S. B. (August, 1991). Sample size tables, t-test, and a prevalent psychometric distribution. Annual Meeting of the American Psychological Association, Division 5, Evaluation, Measurement, and Statistics, San Francisco, CA.
266. Hillman, S. B., & Sawilowsky, S. (August, 1991). Profiles of adolescent substance abstainers, users, and abusers. Annual Meeting of the American Psychological Association, Division 12, Clinical Psychology, San Francisco, CA.
267. Sawilowsky, S., & Blair, R. C. (April, 1991). A more realistic look at the robustness of the independent and dependent samples t tests to departures from population normality. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians, Chicago, IL.
268. Sawilowsky, S., Baerg, P., Boza, L. A. D., Kallmannsohn, M., Spencer, B., & Vollhardt, L. T. (April, 1991). Power analysis of the Brownie-Boos-Oliver t test for expected increases in treatment variability. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians, Chicago, IL.
269. Hillman, S. B., & Sawilowsky, S. (April, 1991). Substance use in a high school: A profile of abusers and users. Annual Meeting of the American Educational Research Association, SIG/Adolescence, Chicago, IL.
270. Hillman, S. B., Wood, P. C., & Sawilowsky, S. S. (April 10, 1991). Adolescent drug use and abuse. National Conference of The Troubled Adolescent: The Nation's Concern and Its Response, Milwaukee, WI.
271. Hillman, S. B., Sawilowsky, S., Becker, M. J., & Ogilvie, L. A. (August, 1990). Effects of maternal Employment on Adolescent Substance Use. Annual Meeting of the American Psychological Association, Division 35, Psychology of Women, Boston, MA.
272. Sawilowsky, S., & Blair, R. C. (April, 1990). A test for interaction based on the rank transform. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians, Boston, MA.
273. Sawilowsky, S., & Markman, B. (April, 1990). Another look at the power of meta-analysis in the Solomon four-group design. Annual Meeting of the American Educational Research Association, Division D, Measurement and Research Methodology, Boston, MA.

274. Ogunyemi, O., & Sawilowsky, S. (January, 1990). An application of the systemic approach to instructional design. Annual Meeting of the Association for Educational Communications and Technology, Showcase of Achievement, Anaheim, CA.
275. Sawilowsky, S. (March 27, 1989). Rank transformation: the bridge is falling down. Annual Meeting of the American Educational Research Association, SIG/Educational Statisticians. San Francisco, CA.
276. Sawilowsky, S. (April, 1988). Limitations of the rank transform in analysis of variance. Annual Meeting of the American Educational Research Association. SIG/Educational Statisticians, New Orleans, LA.
277. Sawilowsky, S. (April, 1988). Moral education in public schooling: overt pedagogy or covert curricula? Annual Meeting of the American Educational Research Association, SIG/Religion in Education, New Orleans, LA.
278. Lavely, L., Berger, N., Bullock, D., Follman, J., and Sawilowsky, S. (April 23, 1987). Expertise in teaching: expert pedagogues. Annual Meeting of the American Educational Research Association, Expertise in Teaching: The Role of Cognition, SIG/Teacher and Student Cognitions, Washington, D.C.
279. Sawilowsky, S., & Blair, R. C. (April 21, 1987). Properties of the rank transformation statistic. Annual Meeting of the American Educational Research Association. Distinguished Papers From the State and Regional Research Associations: Eleventh Annual Session, SIG/State and Regional Research Associations, Washington, D. C.
280. Sawilowsky, S., & Blair, R. C. (April 21, 1987). Type I error and power properties of the rank transform procedure in factorial ANOVA. Annual Meeting of the American Educational Research Association. Empirical Studies in Statistics, SIG/Educational Statisticians, Washington, D. C.
281. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (March 5, 1987). Causes of the criterion problem in evaluation of effectiveness of teaching. Division G, Social Context of Education, American Education Research Association, Atlanta, GA.
282. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (March 5, 1987). Teacher merit pay plan "fresh" ideas. American Education Research Association, Division G, Social Context of Education, Atlanta, GA.
283. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (March 5, 1987). Role, duties, etc., of lead teachers in career ladder programs. American Educational Research Association, Division G, Social Context of Education, Atlanta, GA.
284. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (February 17, 1987). Teacher merit pay plan "fresh" ideas. Association of Teacher Educators, Houston, Texas.
285. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (February 16, 1987). Causes of the criterion problem in evaluation of effectiveness of teaching. Association of Teacher Educators, Houston, Texas.
286. Lavely, C., Berger, N., Bullock, D., Follman, J., & Sawilowsky, S. (November 1, 1986). Causes of the criterion problem in teaching effectiveness. National Social Science Association, Tampa, FL.

287. Sawilowsky, S. (October 10, 1986). Teacher subject matter examinations in the Florida teacher merit pay plan. Society of Educators and Scholars, Eleventh Annual Conference, Bellarmine College, Louisville, Kentucky.
288. Lavely, C., & Sawilowsky, S. (August 6, 1986). Development of teacher subject matter examinations in the Florida Teacher Merit Pay Plan. Association of Teacher Educators 1986 Summer Workshop, Northern Arizona University, Flagstaff, AZ.
289. Bullock, D., Lavely, C., & Sawilowsky, S. (March 31, 1986). Subject matter test development for merit pay. Council for Exceptional Education, New Orleans, LA.
290. Sawilowsky, S., Hines, C., & Hall, B. (February 26, 1986). Testing teachers for merit pay. American Association of Colleges of Teacher Education, Chicago, IL.
291. Berger, N., Lavely, C., Sawilowsky, S., & Ward, A. (October 5, 1985). Teacher subject area examinations in the Florida Teacher Merit Pay Program. Tenth National Conference of the Society of Educators and Scholars, Hackensack, NJ.

2. Invited and/or Refereed Locally/Regionally

a. Invited

292. Sawilowsky, S. (2002). Fermat, Schubert, Einstein, and Behrens-Fisher: The probable difference between two means when $\sigma_1 \neq \sigma_2$. University of Central Michigan Math Department Colloquium, Mt. Pleasant, MI.
293. Sawilowsky, S. (Winter, 1998). Reading the ANOVA table - top down or bottom up? Letters with Norman Anderson. Invited presentation at the Detroit Chapter of the American Statistical Association, Farmington Hills, MI.
294. Sawilowsky, S., and Blair, R. C. (November 14, 1986). An examination of the rank transformation in factorial ANOVA. Invited Paper Session, Annual Meeting of the Florida Educational Research Association, Tampa, FL.

Refereed

295. Rothenberg, L., & Sawilowsky, S. (October, 1998). A comparison of seven robust estimators of location using real data sets. Annual Meeting of the Midwest Educational Research Association, Chicago, IL.
296. Rothenberg, L., & Sawilowsky, S. (March 22, 1997). Teaching random assignment. Midwest Conference on Teaching Statistics. Oshkosh, WI.
297. Kelley, D. L., Sawilowsky, S., & Blair, R. C. (October, 1994). Comparison of ANOVA, McSweeney, Harwell-Serlin, and Blair-Sawilowsky tests in the balanced 2x2x2 layout. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
298. Assel, M., & Sawilowsky, S. (October, 1994). Effects of suggestology on multilingual students' reading, math, and science skills. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
299. Sawilowsky, S., Kelley, L., & Markman, B. (October, 1993). Power of meta-analysis in the Solomon Four-group design. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
300. Blair, R. C., & Sawilowsky, S. S. (October, 1992). A distribution-free maximum test of location for two independent samples. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.

301. Blair, R. C., & Sawilowsky, S. S. (October, 1991). Confounding covariates in nonrandomized studies. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
302. Sawilowsky, S., a& Markman, B. S. (October, 1990). Guilt. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
303. Snyder, J., & Sawilowsky, S. (October, 1990). A qualitative analysis of communication skills in the Detroit compact initial project. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
304. Snyder, J., & Sawilowsky, S. (January, 1990). A qualitative analysis of communications skills in the Detroit compact initial project. Annual Meeting of the Michigan Educational Research Association, Novi, MI.
305. Hillman, S. B., Becker, M. J., Ogilvie, L. A., & Sawilowsky, S. (October, 1989). Adolescence: substance use and abuse. Annual Meeting of the Michigan Psychological Association, Novi, MI.
306. Ogunyemi, O., & Sawilowsky, S. (October, 1989). An application of the systemic approach to instructional design in the Detroit compact. Annual Meeting of the Mid-Western Educational Research Association, Chicago, IL.
307. Sawilowsky, S. (October 13-15, 1988). Failure of the expected normal and random normal transform in experimental design. 10th Annual Meeting of the Mid-West Educational Research Association, Chicago, IL.
308. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (March 6, 1987). Causes of the criterion problem in evaluation of effectiveness of teaching. North Carolina Association for Research in Education, Raleigh, NC.
309. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (March 6, 1987). A descriptive profile of the Florida associate master teacher. North Carolina Association for Research in Education, Raleigh, NC.
310. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (March 6, 1987). Role, duties, etc., of lead teachers in career ladder programs. North Carolina Association for Research in Education, Raleigh, NC.
311. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (January 30, 1987). Role, duties, etc., of lead teachers in career ladder programs. Southwest Educational Research Association, Dallas, Texas.
312. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (January 30, 1987). Teacher merit pay plan "fresh" ideas. Southwest Educational Research Association, Dallas, Texas.
313. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., & Sawilowsky, S. (January 30, 1987). Expertise in teaching: expert pedagogues. Southwest Educational Research Association, Dallas, Texas.
314. Lavely, C., Follman, J., & Sawilowsky, S. (November 20, 1986). Causes of the criterion problem in evaluation of the effectiveness of teaching. Mid-South Educational Research Association, Memphis, Tennessee.
315. Lavely, C., Hines, C., Kromrey, J., & Sawilowsky, S. (November 20, 1986). Survey of characteristics of Florida master teachers. Mid-South Educational Research Association, Memphis, Tennessee.

316. Lavely, C., Berger, N., Bullock, D., Follman, J., & Sawilowsky, S. (November 19, 1986). Expertise in teaching: expert pedagogues. Mid-South Educational Research Association, Memphis, Tennessee.
317. Sawilowsky, S., & Follman, J. (November 19, 1986). Teacher merit pay plan 'fresh' ideas. 1986 Annual Meeting, Mid-South Educational Research Association, Memphis, Tennessee.
318. Lavely, C., Berger, N., Bullock, D., Follman, J., Hines, C., Kromrey, J., & Sawilowsky, S. (November 14, 1986.) A descriptive profile of the Florida Associate Master Teacher. 1986 Annual Meeting, Florida Educational Research Association, Tampa, FL.
319. Lavely, C., Berger, N., Bullock, D., Follman, J., Kromrey, J., a& Sawilowsky, S. (October 31, 1986). Causes of the criterion problem in the evaluation of effectiveness of teaching. Florida Association For Supervision and Curriculum Development, Orlando, FL.
320. Lavely, C., Follman, J., & Sawilowsky, S. (March 15, 1986). Florida teacher subject matter knowledge test development for merit pay. Eastern Educational Research Association, Miami Beach, FL.
321. Sawilowsky, S., & Bullock, D. (February 28, 1986). Florida teacher subject matter test development for merit pay. Southeast Educational Research Association, Baton Rouge, LA.
322. Lavely, C., Sawilowsky, S., & Berger, N. (January 30, 1986). Merit pay in Florida. Southwestern Educational Research Association, Houston, Texas.
323. Lavely, C., Sawilowsky, S., Berger, N., Hall, B., Hines, C., & Follman, J. (November 14, 1985). Florida teacher subject matter knowledge test development for merit pay. Florida Educational Research Association, Miami, FL.
324. Berger, N., Follman, J., & Sawilowsky, S. (November 8, 1985). Content area tests for merit pay. Mid-South Educational Research Association, Biloxi, Mississippi.
325. Berger, N., Follman, J., & Sawilowsky, S. (October 11, 1985). Florida teacher subject matter knowledge test development for merit pay. Northern Rocky Mountain Educational Research Association, Jackson, Wyoming.

Refereed Symposia

326. Sawilowsky, S. (April, 1988). Moral education in the schools: hidden curriculum or overt pedagogy? Annual Meeting of the American Educational Research Association, SIG/Religion and Education. New Orleans, LA.
327. Lavely, C., Berger, N., Hines, C., and Sawilowsky, S. (April 23, 1987). Teacher Subject Matter Examinations in the Florida Merit Pay Plan. 1987 Annual Meeting of the National Council on Measurement in Education, Washington, D.C.
328. Lavely, C., Berger, N., Bullock, D., Follman, J., Hall, B., Hines, C., Sawilowsky, S., & Ward, A. (November 14, 1985). Statewide test development. Florida Educational Research Association, Miami, FL.

Dissertation and Thesis

Sawilowsky, S. (1985). *Robust and power analysis of the 2x2x2 ANOVA, rank transformation, random normal scores, and expected normal scores transformation tests*. Unpublished doctoral dissertation, University of South Florida.

Sawilowsky, S. (1981). *Ethnic personality theory*. Unpublished master's thesis, University of South Florida.

IV. Service

A. Administrative Appointments at Wayne State University in Last Five Years

Assistant Dean

Division of Administration and Organizational Studies, January, 2009 – August, 2010.
Division of Theoretical and Behavioral Foundations, January, 2009 – August, 2010.

Interim Assistant Dean

Division of Administration and Organizational Studies, January, 2008 – August, 2008.
Division of Theoretical and Behavioral Foundations, January, 2008 – August, 2008.

Department Chair

Program Coordinator - Evaluation and Research, College of Education. 1994 – 2009.

C. Committee Assignments

1. University Committee Chaired

1. Center and Institute Advisory Committee
    a. Subcommittee: Center for Arts and Public Policy, 2004-2006

2. University Committee Membership

2. Center and Institute Advisory Committee, 2002 - 2006
    a. Subcommittee: Cohn-Haddow Center, 2003
    b. Subcommittee: Center for Chicano-Boricua Studies, 2003
    c. Subcommittee: Center for Urban Studies, 2002
3. University Research Grant Program, 2004
4. Graduate Professional Scholarship Committee, 1998-2003, 2007
5. University Research Grant Committee, 2001
6. Graduate Faculty Fellowship Committee, 2001
7. Outstanding Mentor Award Committee, 1999-2000
8. Ad Hoc Committee to Study University Ph. D. Commission Recommendations, 1999 - 2000
9. Review Committee: College of Education, 1997 - 1998
10. President's Award For Excellence in Teaching Committee, 1996-1997
11. President's Award For Excellence in Teaching Committee, 1995-1996
12. Student Academic Preparedness Committee, Academic Senate, 1995
13. Developmental Disabilities Institute, University Affiliated Programs, University Faculty Committee. 1990-1994

3. College/Department Committees Chaired

14. Educational Leadership Faculty Search Committee, 2009-2010.
15. Instructional Technology Faculty Search Committee, 2009-2010.

16. Counseling & Rehabilitation Counseling Faculty Search Committee, 2009-2010.
17. College Plagiarism Committee, 2009.
18. College of Education Personnel Committee (signed faculty evaluations), 1995-1996, 1999-2003
19. EER Faculty Search Committee Co-Chair, 1994-1995, 1995-1996, 2007-2008, 2008-2009
20. College of Education Assessment Committee, 1990-1994

4. College/Department Committee Membership

21. College Personnel Committee, 1994 - 1996, 1997 – 2009, 2011 – present.
22. Doctoral Academic Standards Committee, 1994 – 2009.
23. Replacement Equipment Committee, 1992 – 2000
24. Year 2000 Planning Committee, 1998-2000
25. College Curriculum Committee, 1996 - 1998
26. College of Education Excellence in Teaching Award Personnel Subcommittee, 1995-1996
27. Computer Services Center Director Search Committee, 1995-1996
28. LAN System Advisory Committee, 1992
29. WSU Collaborative Committee, 1991
30. Faculty Executive Committee, 1989-1990
31. Evaluation Specialist, Detroit Compact Initial Project, 1987-1990
32. Theoretical & Behavioral Foundations Personnel Committee, 1987-1989

5. Intra College Service

33. 2003, April. Reviewer: R01 Mock Review. The Center for Health Research, College of Nursing.
34. 2003, May. Reviewer: R01 Mock Review. The Center for Health Research, College of Nursing.

D. Positions Held in Professional Associations

1. President, American Educational Research Association, SIG/ Educational Statisticians, 2008-2009.
2. Program Chair, American Educational Research Association, SIG/Educational Statisticians, 2008 annual conference.

G. Journal/Editorial Activity

1.Editor

2000 - Present

1. *Journal of Modern Applied Statistical Methods*

2008 – Present

2. *Yalkut Shoshanim*

2. Editorial Board Memberships

2009 – present

3. *Michigan Journal of Counseling*

2008 – present
4. *The Open Psychology Journal*

1993 - 1995
5. *Psychological Bulletin*

1985 - 1987
6. *Florida Journal of Educational Research*

Ad Hoc (Periodic) Reviews
2008 – present
7. *Annals of Epidemiology*
8. *BioMed Central Medical Research Methodology*

2007 – present
9. *Statistics in Medicine*

2006 – present
10. *Acta Odontologica Scandinavica*

2005 - present
11. *Journal of Experimental Education*
12. *Measurement and Evaluation in Counseling and Development*

2002 - present
13. *Educational Researcher*
14. *Psychological Science*

2000 - present
15. *Computational Statistics and Data Analysis*
16. *Social Behavior and Personality: An International Journal.*
17. *Journal of Nonparametric Statistics*

1999 - present
18. *Psychometrika*

1998 - present
19. *Journal of Educational and Behavioral Statistics*

1995 - present
20. *Psychological Methods*
21. *Journal of Statistics Education*

1992 - present
22. *British Journal of Mathematical and Statistical Psychology*

23. *Psychological Reports*
24. *Perceptual and Motor Skills*
25. American Educational Research Association, Division D, Measurement and Research Methodology
26. National Council on Measurement in Education

1989 - present
27. American Educational Research Association/SIG Educational Statisticians
1991 - 1993; 1995 - 1996
28. *Psychological Bulletin*

1989- 1990
29. American Educational Research Association/SIG Religion and Education

Shlomo Sawilowsky, Inc.
P. O. Box 48023 Oak Park, MI 48237
(248) 470-1172 snbaay@yahoo.com

Date	Type/Nature	Description
2011 – Present	Litigation Support: Whistleblower	(CRA) Calloway v. Detroit Public Schools Data Analysis Undisclosed Expert for Defendant
2010 – Present	Litigation Support: Foster Care	D. G. et al., vs. C. Brad Henry et al. Case No. 08 CV-07 4GKF FHM U. S. District Court Research design, Psychometrics, Program Evaluation, Data Analysis Submitted Reports for Defendant
2009 – Present	Federal Earmark: Self-Determination & anti-Bullying	Friendship Circle & Weinberg Village West Bloomfield, MI P. I., Psychometrician, Program Evaluator, Data Analyst
2008 – Present	Grant: United Way	Marygrove College Detroit MI Institute for Arts Infused Education Psychometrician, Program Evaluator, Data Analyst
2010 – 2011	Consulting: Marketing Research	Dynamic Rehabilitation Troy, Michigan Data Analyst
2010	Litigation Support: Mitigation, Damages	(CRA) Ogden v. Saint Mary's Medical Center et al. Case No. 06-11721 U. S. District Court Discovery/Deposition Assistance Undisclosed Expert for Defendant
	Litigation Support: Mitigation, Damages	(CRA) Roberto Landin v. Healthsource Saginaw File No.: 08-002400-NZ-3 U. S. District Court Discovery/Deposition Assistance Undisclosed Expert for Defendant

2007 – 2010	Grant: U. S. Dept. of Education Office of Innovation & Improvement	Brooklyn Center, Minnesota Northwest Suburban Independent School District Magnet School Rigorous Evaluation Program P. I., Program Evaluation, Data Analysis
	Grant: U. S. Dept. Of Education Office of Innovation & Improvement	Cleveland, Mississippi Public Schools Magnet School Rigorous Evaluation P. I., Program Evaluation, Data Analysis, & Psychometrics
2007 – 2009	Consulting: Standardized Test Construction	Devereux Foundation DECA-IT Psychometrics, National Test Norms, Paper-to-Software Port
2009	Litigation Support: ERISA	(CRA) Caudill et al. v Sears Transition Pay Plan et al. Case No. 06-12866 U. S. District Court Data Analysis Undisclosed Expert for Defendant
	Litigation Support: Mitigation, Damages	(CRA) Terry E. Lange v. Russo Group Enterprises d/b/a Lochmoor Chrysler-Jeep Case No. 09-001762-CD U. S. District Court Discovery/Deposition Assistance Undisclosed Expert for Defendant
	Litigation Support: Mitigation, Damages	(CRA) Powers v. Post News-Week Stations, Inc. (WDIV Channel 4) U. S. District Court Discovery/Deposition Assistance Undisclosed Expert for Defendant
2007 – 2008	Consulting: Sales Incentives	(CRA) BCBS of Michigan, IBU Unit Data Analyst
2008	Litigation Support: Foster Care	Dwayne B. v. Jennifer Granholm Case No. 2:06-CV-13548 Data Analysis Submitted Report, Deposed for Defendant

	Litigation Support: Age Discrimination	(CRA) Allen et al. v Sears Home Improvement et al. Case No. 2:07-cv-11706 U. S. District Court Data Analysis Undisclosed Expert for Defendant
	Litigation Support: False Advertising	(CRA) Bobbitt et al. v. Academy et al. Case No. 2:07-cv-10742 U. S. District Court Data analysis, Documentary Analysis Submitted report for Defendant
2002 – 2003	Litigation Support: Promotion Bias	Brown v. Ann Arbor Public Schools Case No. 01-1106-CL Data Analysis for Defendant
Circa 1999	Litigation Support: Fraud	City of Detroit (?) v. Defendants 2 & 3 (Detroit Sergeants and Lieutenants Test) Psychometrics, Data Analysis Testified for Defendants
Circa 1998	Litigation: Fraud	City of Detroit (?) v. Defendant 1 (Detroit Sergeants' and Lieutenants' Test) Psychometrics, Data Analysis Deposed for Defendant
1996	Grant: Salvation Army	Harbor Light Center, Detroit, MI. Client-Centered Adult Education Skills P. I., Program Evaluator
1995	Grant: University Of North Florida	Urban Community Service Collaborative Project: High Schools, Agencies, and Students Program Evaluator
1994	Consulting: Special Education	River Rouge, MI, School District: High School Transition Skills Program Evaluator
Circa early-1990s	Litigation Support: Unlawful Discharge	(???) v. Code Alarm Detroit, MI Psychometrics, Data Analysis Testified for Defendant

Circa 1990/1991	Litigation Support:	Smith v. Marvin et al.
	Medical Malpractice	Detroit, MI Documentary Analysis, Data Analysis Deposed, Evidentiary Hearing for Defendants

Notes: This is a corrected version of the submission on June 7, 2011. Some dates are approximate, or may only refer to begin or end date. CRA = Consulting Resource Associates, Ken Myers, President, 26600 West Fourteen Mile Road, Bloomfield Hills, Michigan 48301, www.cra-consultingresource.com. There were about ½ dozen additional litigation support cases (mitigation, economic damages) not listed here where brief, preliminary work was performed via CRA, but no reports were produced, no depositions were taken, and no testimony was given.

Shlomo S. Sawilowsky
Resume of Pre-Professorial Work Experiences 1969 – present

My work experiences prior to/overlapping the beginning of my professorial career, include:

- landscaping, On Top Of The World, Orlando area, Florida, 1970
- yacht laminator, Morgan Yacht, St. Petersburg, Florida, 1971
- yacht foreman, Helson Yacht, St. Petersburg Florida, 1972
- drapery installer, Ari's Drapery, St. Petersburg, Florida, 1973
- hardware sales, Dukes Mixture, Atlanta, Georgia, 1974
- restaurant air duct installation and cleaning, Atlanta, Georgia, 1975
- dairy supervisor, Goldenflow, Lowville, New York, 1976
- dairy supervisor, J&J, Morristown area, New Jersey, 1977
- mattress manufacturing, Antonori Bedding, St. Petersburg, Florida, 1980
- convenience store manager, L'il General, Tampa, Florida, 1981
- night monitor & counselor, court-ordered half-way house (adjudicated minor and adult drug offenders), St. Petersburg, Florida, 1983
- graduate teaching assistant, University of South Florida, 1983
- associate director,* Chabad House of Tampa, Florida, 1980 – 1985
- graduate research assistant, University of South Florida 1984 – 85
- Rabbi and Director, Chabad House of Pinellas County, Florida, 1985 – 1987
- night security, Michigan Bakery, Detroit, Michigan, 1987
- attaché,* Council of Orthodox Rabbis of Greater Detroit, Southfield, Michigan, 1987 – 1990
- Judaic studies instructor,* Chabad of Oak Park & West Bloomfield, Michigan, 1987 – 2006
- Associate Rabbi,* Bais Chabad of Farmington Hills, Michigan, 2007 – present

Note: * - volunteer

Considered Materials
List of Shlomo S. Sawilowsky's Considered Materials

In addition to materials listed in the "References" section of this report, I was provided the following documents to review in this case:

CFSD Client Services.xls
CFSR response.doc
Child maltreatment date 042811.doc
Copy of CW Tenure 5 years.xls
Copy of referralremoval_data 3-27-2011.xls
Key Child Welfare Reports Guide.doc
Key Reports Examples.xls
Oklahoma context data.pdf
Overview of the Oklahoma CFSR.DOC
SFY Shelter Report (2).doc
SILT Dashboard Data (2) 041311.pdf
States Data re Adoptions 2005-2009 (3).xls
5-3 OCA Investigations of OKDHS Custody 2009.xls
5-3 OKDHS Custody Children (KIDS) with Allegations of CAN 2009.xls
5-5 Placement Resources OKDHS Custody Children 2009.xls
DHS 3rd Supp to P's 5th RFP 4-13-10.pdf
DHS 4th Supp to P's 5th RFP 5-6-10.pdf
5-1 OKDHS Custody Children 3-1-2010.xls
DHS 2nd Supp to P's 5th RFP 3-31-10.pdf
DHS 4th Supp to P's 5th RFP 5-6-10.pdf
Key to Class Sampling #1.pdf
Key to Class Sampling #2.pdf
Email 09.06-02 DG v. Henry et al – Correspondence from Donna De Simone.pdf
Email 09.06-11 Plaintiffs' Fifth Request for Production of Documents.htm
Email 09.06-11 Plaintiffs' Fifth Request for Production of Documents.html
Email 09.06-12 Request No. 3 in Plaintiffs' Fifth Request for Production.html
Email 09.09-08 Request No. 3 in Plaintiffs' Fifth Request for Production.html
Email 09.09-17 Request No.3 in Plaintiffs' Fifth Request for Production.html
Email 09.09-22 Request No.3 in Plaintiffs' Fifth Request for Production.html
Email 09.10-28 Request for Meet and Confer.htm
Email 10.02-08 Plaintiffs' Fifth Request for Production.htm
Email 10.02-09 Plaintiffs' Fifth Request for Production.html
Email 10.02-11 Named Plaintiffs' November 11 2009 Motion to Compel.htm
Email 10.02-23 Feb. 23 Meet and Confer.html
Email 10.02-25 Feb. 23 Meet and Confer.htm
Email 10.03-02 Feb. 23 Meet and Confer.htm
Email 10.03-02 Feb. 23 Meet and Confer.html
Email 10.03-03 Feb. 23 Meet and Confer.htm
Email 10.03-09.pdf
Email 10.03-29 DG v. Henry – Correspondence from Donna De Simone.htm
Email 10.03-31 Plaintiffs' Fifth Request for Production.html

Email 10.04-01 Motion to Compel.html
Email 10.04-05 Case Record Review.htm
Email 10.04-21 Defendants' Response to Document Request No. 3 in Plaintiffs' Fifth Request for Production. html
Email 10.04-27 Defendants' Response to Document Request No. 3 in Plaintiffs' Fifth Request for Production.htm
Email 10.05-14 DHS Abuse and Neglect Investigations List.htm
Email 10.05-28 Case Record Review.pdf
Email 10.06-01 Case Record Review FUTURE PRODUCTIONS.htm
Email 10.06-09 DG v. Henry – Documents Produced Responsive to 5th RFP.htm
Email 10.06-14 Case Record Review.htm
Email 10.06-30 D.G. v. Henry.htm
Email 10.07-07.htm
Email 10.07-12 Issue with Case Record Review Index.htm
Email 10.07-27 Case Record Review Production Issues.pdf
Email 10.08-05 D.G. v. Henry – correspondence.htm
Letter 09.05-27 To Kapell fr De Simone re Hess Expert Report, via email.pdf
Letter 10.03-23 To Kapell, Lowry fr De Simone re 5th RFP.pdf
Letter 10.03-31 to Don Bingham.pdf
Letter 10.04-12 to David Page.pdf
Letter 10.05-21 To Kapell fr De Simone re List of Case Record Review.pdf
Letter 10.05-26 To Kapell fr De Simone re YI native format.pdf
Letter 10.06-09 From Kapell to DMD re PDFing 5th RFP docs.pdf
Letter 10.06-16 from Kapell to Bingham, De Simone re Case Record Review.pdf
Letter 10.06-17 To Kapell fr DPP re case file production.pdf
Letter 10.06-30 to Bingham, De Simone, Koepsel.pdf
Letter 10.07-20 fr BK to De Simone and Koepsel.pdf
Letter 10.07-30 To Kapell fr DPP re case mgmt, pltfs' expert disclosures, via email.pdf
Letter 10.08-05 to David Page.pdf
Letter 10.08-05 To Kapell fr DMD, KEK in resp to production issues via email only.pdf
Plaintiffs' Fifth Request for Production of Documents 5-15-09.pdf
Stipulation.doc
5-1 OKDHS Custody Children 3-1-2010 – Expert Sample 7-7-10.xls
5-3 OCA Investigation of OKDHS Custody 2009 – Expert Sample 7-6-10.xls
5-3 OKDHS Custody Children (KIDS) with Allegations of CAN 2009 – Expert Sample 7-6-10.xls
Email 10.05-29 List of 200 selected case files for the Case Record Review.pdf
Email 10.07-06 DG v. Henry - - Selected files for Goad Expert Review.pdf
E-mail 10.07-09 DG v. Henry - - Selected files for Goad Expert Review.pdf
List of 200 Sample Children 5-28-10.xls
John Goad Deposition Exhibits 1-14
Milner 00001-048618 (includes dat & txt Files)
Milner 048619-133440
FW DHS policies reviewed by Goad & Hess.htm
FW Materials missing from Goad considered materials production.htm
Goad – 000001-001677
Expert Report – Supplemental 2-25-10 (Oklahoma case).pdf
Expert Report 3-12-09 (Oklahoma case).pdf

Expert Report 5-19-09 (Oklahoma case).pdf
Expert Report 9-30-09 (Oklahoma case).pdf
Condensed final of Eugene Reynolds.pdf
Reynolds, PhD, Eugene – Rough Draft.Rtf
Eugene Reynolds Deposition Exhibits 1-22
1st Round CFSR Key Findings Report.pdf
75 U.S.C. section 671.pdf
1997.12 Interim Study 97-28.pdf
2001 Governor's Task Force on Children in Custody Annual Report.pdf
2007.10.03 DeClan Stewart.pdf
2010.04.16 Naomi Whitecrow.pdf
2010.05.25 Aja D. Johnson.pdf
2010.05.27 Horrific abuse marked last 3 years of Aja Johnson's life.pdf
2010.10.20 Lawsuit filed in 2009 Edmond foster child's death.pdf
2010.11.30 Maggie May Trammel.pdf
CFSR-SFO-2.1-00032.pdf
WhiteA-007612.pdf
YI613-00001.pdf
H_Hendrick-Docs-2008-00254-00274.pdf
PLAINTIFFS 07574-07663.pdf
Safety-23-00001-00030.pdf
#26 - Final OCA with CW Custody.xls
66 & 67 – APSR-2010-6.30.09-00001-00156 ....
2010.11.15 Def's Reply (Dkt.436).pdf
2011.01.18 Def's Resp. (Dkt. 475).pdf
AFCARS Report.pdf
CFSR-PIP-2009TO2011-QR-00053-00056.pdf
CWFL-MN-1.21.09-00004-00007.pdf
Issuesw-AccessComm-00003-00004, 94.pdf
JonesM-008371.pdf
OCDRB-2008 AnnRpt-00001-00038.pdf
Safety-17-00080-00084.pdf
YI616A-00605.pdf
YI617A-00001-00002.pdf
YI617A-00329-00330.pdf
YI624-00006, 744.pdf
Deposition transcript of Nancy Robinson taken on 11-9-10
Deposition exhibit #350 to Nancy Robinson's deposition taken on 11-9-10
Condensed deposition transcript of John Goad taken on 4-19-11 & 4-20-11
Deposition exhibits #343 through #346 to John Goad's deposition taken on 4-19-11 & 4-20-11
Deposition transcript of Jin Jew taken on 11-9-10
Deposition transcript of Jayaprakash Nair taken on 12-1-10
2009.01.01 CFSD Org Chart (Org P&P-4-00001).pdf
2010.04.08 Oklahoma DHS employees learn of plan to reduce pay.pdf
2011.03.14 Obradovic Report with supplements.pdf
Hitting the MARC (Plaintiffs 00955-00986).pdf
USDA Expenditures on Children by Families.pdf

YI613-00011.pdf
Obradovic Report – 3-15-11.pdf
Obradovic000001-000013.pdf
Selected pages from "Adolescent Relations with Mothers, Fathers and Friends" by James Youniss and Jacqueline Smollar, 1985 by the University of Chicago Press
Milner – 1st – selected files only.xls
Milner – 1st – entire list with 200 selected.xls
Milner – 2nd – entire list with 175 selected.xls
Milner – 2nd – selected files only.xls
Goad – OCA-entire list with selected files marked.xls
Goad – Investigations – entire list with selected and back-up files marked.xls
Goad – Investigations with selected and back-up files only.xls
Docket #227 – Redacted – DHS's Answer.pdf
Docket 002 – Complaint,pdf
2-25-10 Hess supplemental review of NP files – GC, KT.pdf
09-30-09 – HESS review of NP files – Plaintiffs' Expert Report.pdf
Expert Report 11-10-01.pdf
Links to CFSR Key Federal Register & ACF Memoranda
Milner Report – 2011.02.17 CSF Foster Care Case Review,pdf
Milner – CSF Retainer Letter.pdf
2011.03.15 Reynolds Psychiatric Review.pdf
2011.03.15 Miller Management Review.pdf
John Fluke CV.pdf
Smollar - Statistical Profile of One-Parent Households and Children.pdf
Hess.ptx
OKDHS CW Practice Model - Supervisor's Guide 7-2008
OKDHS CW Practice Model Guide 10-31-08
Condensed and full length versions of Jacqueline Smollar's deposition and Word Index
Peg Hess deposition transcript
Miller-00330-00636
Smollar - Statistical Profile of One-Parent Households and Children.pdf